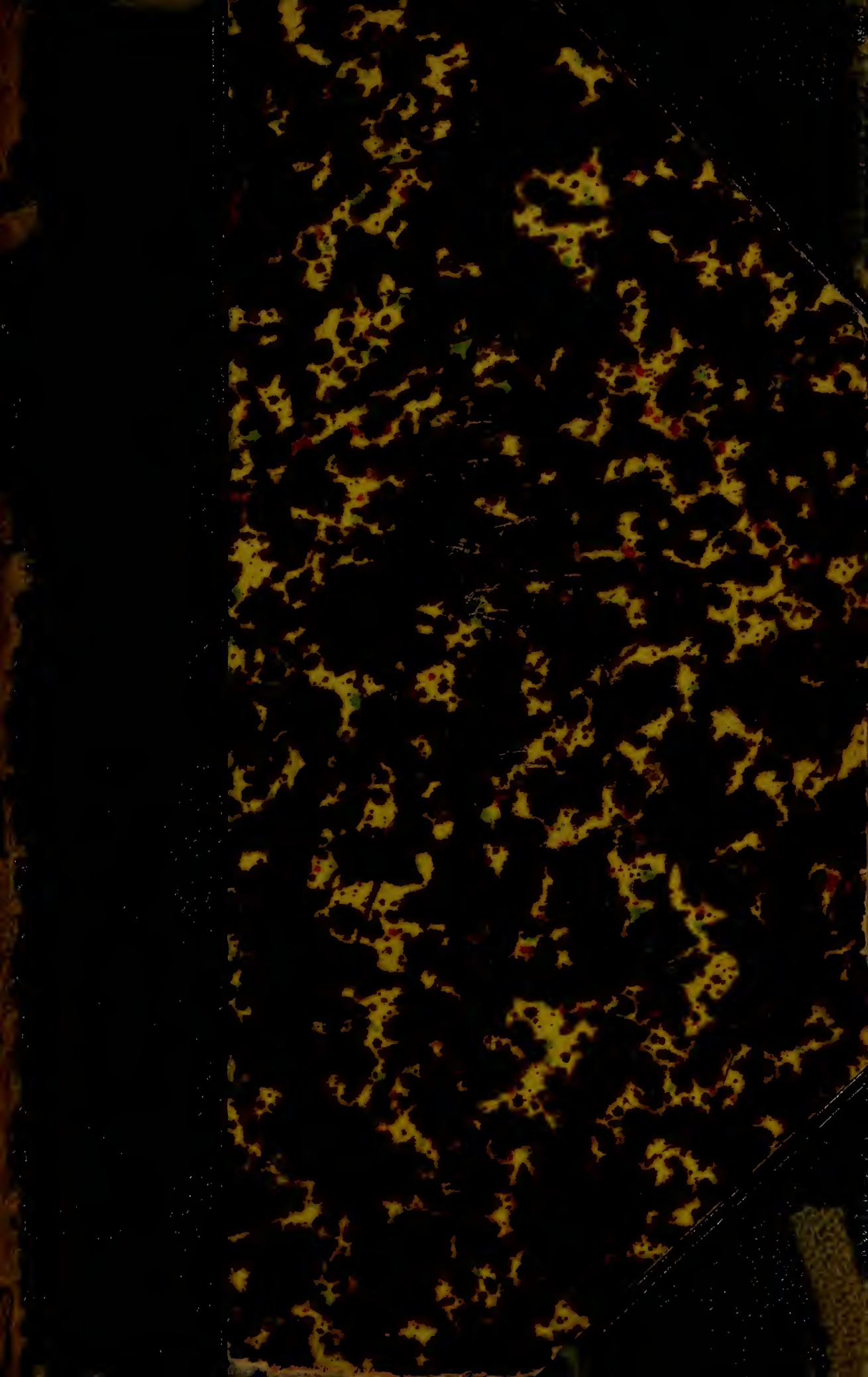

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COMMUNICATIONS AND DISSERTATIONS

OF

THE MASSACHUSETTS MEDICAL SOCIETY.

PUBLISHED BY THE SOCIETY.

VOLUME SECOND.

BOSTON:
PRINTED BY THOMAS B. WAIT AND CO.
1813.

ADVERTISEMENT.

The committee of publication are at last able to present the society with the greater part of their annual dissertations. The causes, which have so long retarded this publication, it is not necessary to state, as they are generally known to the society.—Various circumstances have contributed to render it impossible to arrange them in the order they were delivered in. A list of the dissertations, with their dates and authors, has therefore been added.

This number completes the second volume of the society's publications. The other parts of it consist of the number printed in 1809, and of that on the petechial fever, printed in 1810. In order to render the volume uniform, the notes of Dr. Bartlett's dissertation have been re-printed. The bookbinder is to be directed to place these at the end of the volume, and to remove those formerly printed; so that article 13th may immediately follow article 12th. The table of contents and the list of fellows of the society are to be placed at the beginning of the volume. All possible pains have been taken to render the latter accurate and complete. It is still, perhaps, not wholly free from errors and omissions, which must be considered unavoidable.

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CONTENTS OF VOLUME II.

I. Observations on the Lymphatic Swelling of the Inferior Extremities of Puerperal Women. By Dr. James Mann . . . . . *Page* 1

II. Observations concerning the Influenza of 1807. By James Jackson, M. D. 9

III. Facts relating to the Small Pox and Cow Pock. By Dr. Pardon Bowen 17

IV. Singular case of Epilepsy. By Dr. Matthias Spalding 22

V. Remarkable case of Ovarian Schirrhus and Encysted Dropsy. By Dr. Amos Holbrook 29

VI. History of a Singular and very Mortal Disease, which appeared in Medfield. By Drs. Danielson and Mann 36

VII. Account of an Uncommon Disease, which appeared in Geneva in 1805 43

VIII. Case of Tonic Spasm cured by Electricity. By Dr. Matthias Spalding 45

IX. Bill of Mortality for Amherst. Dy Dr. Robert Cutler 48

X. Cases of Organic Diseases of the Heart. By John C. Warren, M. D. 49

XI. Report on the Spotted or Petechial Fever. By Thomas Welsh, M. D. James Jackson, M. D. and John C. Warren, M. D. 111

XII. Dissertation on the Progress of Medical Science in the Commonwealth of Massachusetts. By Josiah Bartlett, M. D. 235

XIII. On the Use of Sulphate of Copper in Uterine Hæmorrhage. By Joshua Fisher, M. D. Vice President of the Massachusetts Medical Society . 271

XIV. Observations upon Menorrhagia and Leucorrhœa; and the beneficial employment of Blisters, Acetite of Lead, and the Sub-muriate of Mercury, in those Diseases. By Dr. James Mann 274

XV. On the Effects of the Application of a Hot Iron, in cases of Lock-Jaw. By Dr. Thomas Babbitt . 275

XVI. Dissertation, read before the Massachusetts Medical Society, on Heat and Cold. By Thomas Welsh, M. D. 285

XVII. Dissertation on the Use of Blisters in Diseases of the Articulations. By Aaron Dexter, M. D. 301

XVIII. Dissertation on certain Epidemic Diseases which prevailed in the County of Worcester, Massachusetts. By the Hon. Oliver Fiske, M.D. 318

XIX. Dissertation on the Mercurial Practice in Febrile Diseases. By John Warren, M. D. President of the Massachusetts Medical Society . . . 341

7350

MEDICAL COMMUNICATIONS.

ARTICLE I.

Observations on the lymphatic swelling of the inferior extremities of puerperal Women.

By Dr. JAMES MANN,
Of Wrentham.

READ FEBRUARY 1st, 1809.

Previous to reading a communication made to the M. Medical Society, by Doctor Edward Wyer, designated "Observations on the lymphatic distention of the lower extremities of women, while in the puerperal state," I had collected minutes of some cases of the same disease, with an intention of communicating them to the society.

Doctor Wyer's history of this perplexing disease agreeing, in most respects, with those cases which have fallen under my observation, I shall be the less particular in my description of it. I except, however, the continuance of the flow of milk, and lochia; both of these, in the cases I have had occasion to notice, were suppressed; which, however, I consider rather an effect, than the cause of the disease.

In most of the cases, I have seen, this disease supervened about fourteen days after parturition, and always, without any known assignable cause,

either from cold, fatigue, or errors of any kind, at the time of, or after parturition. It is introduced by pains in the lumbar region, which, passing forward to the pubis, and groin, and downwards, extend through the thigh, leg, and foot; the hip sometimes complains.

These pains, at the commencement of the attack, are accompanied with rigors, to which succeed irritative fever, hot dry skin, quick pulse, somewhat hard, loss of appetite and thirst; with a gradual, but excessive enlargement of the whole lower extremity. The skin of the swelled limb is not discoloured, but assumes, in a remarkable manner, a shining glazed appearance.

The patient complains that the limb is unusually heavy; and having lost the power of voluntary exertion, it seems to be confined to the place it occupies; and whenever moved by any assistance, suffers extreme pain.

During the enlargement of the limb, which I consider the inflammatory state of the disease, the skin is tense, and elastic, leaving no impression of the finger. The swelling continues stationary for some time, after which the limb becomes œdematous; and an indentation remains upon it a short time after an impression is made. This, by way of distinction, may be called the chronic state of the disease; which continues many weeks, and even months, before the swelling is completely reduced.

In all the cases which have come within my knowledge, the swelling of the limb was at its great-

est enlargement about the seventh day from its commencement. The pain then abated, the swelling continuing the same, the disease made a new assault upon the other limb, in a manner very similar to its first attack; so that there was a decrease of disease in one limb, somewhat proportioned to its increase in the other.

In the course of twenty eight years practice, I recollect to have seen six or seven cases of this disease, with little variation in its symptoms. To the first of which I was called, in consultation, at the time when the swelling of the limb was the greatest. The attending physician, since deceased, supposing the swelling contained some fluid, which required an evacuation, had, previous to my visit, made an incision through the skin and membrana adiposa of the enlarged limb, for the purpose of discharging the contents of it. Herein he was not only disappointed, but, to his mortification, the incised part immediately became grangrenous, a sphacelous of the whole limb soon followed, which terminated fatally in about ten days after the operation.

Two other cases of this disease, which I occasionally saw, were variously treated by the several physicians who attended in consultation. Cathartics, diuretics, and antimonials, were the most prominent medicine administered. These did not apparently afford any mitigation to the pain, nor was the swelling reduced thereby; nor did the many topical applications, which were applied, give permanent ease. One of these cases was put under a sweating process, upon a supposition that the disease was a

rheumatic affection, but without affording any relief. The effect was apprehended to have been injurious, in consequence of the debility induced thereby. These patients, however, after a tedious length of time, recovered; and have borne children since, without a renewed assault from this disease.

I SHALL be more particular in describing the practice pursued in three cases of more recent date. As there was no essential variation in the treatment of these, I shall consider all of them as one.

IN consequence of an accelerated action of the arterial system, with increased heat, dry skin, and thirst, I was induced to take from the arm twelve ounces of blood. I cannot say that any immediate relief followed, such as is expected from blood-letting, generally, in inflammation; but I can say, that no injury was the consequence of it. Then was administered five grains of calomel, [*sub-murias hydrargyri*] evening and morning, and intermediately the vinum tartritis antimonii, every three hours in nauseating doses. If the calomel did not produce a free catharsis, which it seldom failed to do, it was followed by sal glauberi [*sulphas sodæ*] or ol. ricini. Woollen cloths wrung out of warm water were repeatedly applied to the limb. These fomentations mitigated the pain no longer than the applications were made, which led me to believe that the moisture, rather than the warmth, procured the momentary ease, by taking off the tension of the over-distended skin. From this circumstance, it was an object to make an application, which would prove a constant fomentation. Meadow moss [*lichen pa-*

lustris] answered this intention extremely well; in this, the whole limb was buried; and while it retained moisture, similar to a sponge, was soft to the limb, requiring a renewal only once in twelve hours. During the first stage of the disease, or swelling state of the limb, the above application seemed of much benefit; for certainly ease was obtained by it. After the bowels were freely opened by the first doses of calomel, the same medicine was continued, in smaller doses, twice in twenty four hours, in such a manner as to excite the glands of the mouth, so as to induce a moderate ptyalism. Opium was also an indispensable medicine; this was administered with the calomel at night; and when pain demanded, as often as every twelve, eight, or six hours *per se*. Calomel, opium, and antimonials, were the principal medicines employed through the inflammatory stage of the disease. Of these, calomel seemed the most important, in the curative intention; for, as soon as the mouth became sore, pain was mitigated, and swelling abated. In consequence of the necessary employment of opium, which medicine I considered as a palliative, cathartics of sal glauberi [*sulphas sodæ*] ol. ricini, or glysters, were employed to obviate the restriction of the bowels occasioned by its use.

The only topical application, except the fomentation above mentioned, which seemed of use in this disease, was a solution of one ounce of sal ammoniacus, [*murias ammoniæ*] and half an ounce of sal saturni [*acetis plumbi*] in two pounds of vinegar. With this solution, the swelled limb was repeatedly

moistened. This embrocation induced a superficial inflammation, accompanied with small pustular eruptions. This application seemed to excite the torpid lymphatics to absorb, from the over distended cellular texture of the limb, the accumulated lymph lodged therein. After the inflammatory state was overcome, or as soon as the œdema appeared, this absorption was assisted by the employment of the spiral bandage; beginning at the foot, the bandage was continued up the whole extent of the limb to the trunk. In two of the last mentioned cases, vesicatories were employed, whether beneficially, or not, I could not determine; but, in consequence of unfavorable appearances they put on, together with a disposition to mortification, which was apparent in the first mentioned case, from a small incision, I should not hazard to employ them again in this disease, during the inflammatory state of the limb; more especially, as the blisters were, in a measure, superceded by the pustular eruption, induced by the ammoniacal, and saturnine, acetite solution, above mentioned.

After the inflammatory state of the disease was subdued, the remaining part of the cure was entrusted to the cort. peruvianus, and the martial preparations, viz. crocus martis [*oxidum ferri rubrum*] flores martiales [*murias ammoniæ et ferri*] or sal martis, [*sulphas ferri*]. In one of the cases, I administered the bark and martial preparations at the same time; in another case, I was of opinion, that the martial preparations were easier upon the stomach than the bark; and when the evening paroxysms of

fever still continued, the crocus martis was preferred to the other preparations of iron, or the bark.

The dietetic management conformed to the state of the disease.

Thus much for pathognomics, and practice.—Next follows the theory of the disease, suggested by the history of it.

This is acknowledged to be a disease of the lymphatic system; as I am persuaded, that most, if not all, puerperal fevers are. During the gravid state of the uterus, there is a gradual increasing pressure upon the lymphatic system of vessels within the abdomen, from the period of conception, to the time of parturition; but, in such a manner, that these vessels continually accommodate themselves to the pressure of the distending uterus. After parturition, a sudden and great change takes place in the whole system, especially as it respects those vessels of the abdomen, by the abstraction of weight, and the removal of the pressure of distention, which had become a direct stimulus to them. By this depletion it may be readily conceived, how the lymphatics may become torpid. In consequence, the exhalents empty into the several cells more lymph than the absorbents take up. During this torpidity, there is an accumulation of the sensorial power in the lymphatic system; in consequence of which, there will be an increased action induced therein by the stimulus of the accumulated lymph. This increased action, by association, will be communicated to the arterial system of vessels; whence will

follow an accelerated circulation, with heat and pain from cuticular distention. These symptoms will continue until the torpid lymphatics commence a reabsorption of lymph from the distended cells of the membrana adiposa; when the œdematous state of the disease begins. Is not a torpor of the lymphatics the proximate cause of puerperal fevers? Would pressure made upon the abdomen, by means of a wide bandage, after parturition, by obviating the torpid condition of the lymphatics prevent most, if not all the cases of puerperal fever which occur? This practice is recommended, if I mistake not, by more than one writer upon this subject. That these swelled limbs are intimately connected with a diseased state of the lymphatics of the abdominal viscera and integuments, I am disposed to believe, from the following circumstance, that in those cases, I have had an opportunity of examining, the enlargement extends above the pubis, and sometimes as high as the umbilical region, accompanied with a soreness, and tenderness to the touch of the hand; and in some instances, a difficulty of passing urine; in one case a total suppression of it, by reason of a stricture upon the neck of the bladder; inasmuch as I was under the necessity of employing the catheter twice, and thrice, in twenty four hours, for a fortnight.

From the several symptoms of this disease, more especially from the last mentioned circumstances, I am induced to consider this disease, as one form of of puerperal fever.

ARTICLE II.

OBSERVATIONS

CONCERNING

THE INFLUENZA,

WHICH PREVAILED IN BOSTON IN FEBRUARY AND MARCH 1807.*

By JAMES JACKSON, M. B.
Of Boston.

READ JUNE 4th, 1807.

During the months of February and March there prevailed here an epidemic disease, which, during its continuance, affected a larger number of persons than any single disease has done, in the same space of time, within these six years. The first two or three cases of this disease, which occurred under my observation, were at the very end of January and beginning of February. In these cases I noticed that, with the symptoms of catarrh, the whole system was more than usually affected; yet, as frequently happens at the rise of epidemics, I considered these rather as varieties of disease, than as a new species. The more frequent occurrence of such cases, after the 10th of February, led me to notice their nature

* This paper was accidently mislaid, which occasioned its omission in our last number.

and their resemblance to each other more accurately. The general character of the disease was sufficiently well marked, although many shades of difference were to be perceived among the individual cases.

It appeared to me to be a hybrid disease; a mixture of catarrh and fever. Catarrh is a local disease, although the whole system sometimes exhibits symptoms of irritation arising from that disease. Fever, on the contrary, is a disease of the whole system, although it sometimes happens that topical inflammation is superadded. But in this disorder it did not appear to be accidental, but essential, that the local and general diseases were combined. In some cases the catarrhal symptoms were more strongly, and those of fever less distinctly, marked. In others, the symptoms of fevers were very considerable, and the catarrhal affection was trifling, and even seemed scarcely discoverable, till the fever had nearly subsided. This opinion respecting influenza is not a new one, but seems to have occurred, more or less distinctly, to the minds of various practitioners, who have been familiar with that disease.

I have made these remarks previous to giving a detail of the symptoms of the disorder, that the application of them may be more easily tested, while considering those symptoms.

In a few cases there were some precursory symptoms. These were often catarrhal; more rarely those which may be called febrile, as languor and want of appetite, with a sense of weariness in the limbs. Whether such symptoms had, or had not preceded,

the disease commenced more evidently with chilliness, often times even rigors; with pain in the head, loins, hips, and extremities. If catarrhal symptoms had not existed previously, there now occurred a soreness in the throat, or in the upper part of the thorax; or else the eyes and nose felt a fulness, such as is commonly experienced in the beginning of a catarrh affecting those parts. With these symptoms were to be noticed a want of appetite, thirst, and considerable prostration of strength. Sometimes there was also observed, at the commencement, nausea; and even vomiting of bile was not very rare. The chilliness, or rigors, were, after a time, succeeded by flushes of heat; but this did not come on, in many cases, till more than twenty four hours after the attack of the disease; nor did it often arise to a great height, nor continue for any long period, in the day time. In the night, however, some patients experienced paroxysms of heat, lasting two or three hours, or more. This heat was, in a few cases, followed by sweating.

The pain in the head was, in some patients, very severe, and continued two, three, and even four days; nor did it, in all, go off entirely till after a longer period. The pain in the back and limbs was never of equal severity with that in the head, but that in the back was in some of equal duration.

The tongue did not exhibit marks of disease in every case; but in most, on the second day, rarely I believe on the first, it was slightly coated with a mucus of a dull whitish colour. This organ was

commonly moist at this time, and often a little swollen, so that its edges were indented by the teeth. The gums also were a little swollen. In one or two cases which I saw, the tongue lost the power of tasting, to a remarkable degree, and did not recover it till after most, or all, the other symptoms of the disease had been carried off, and till the stomach both felt the want of food, and bore it perfectly well. These circumstances may be sometimes noticed in cases of typhus.

When soreness of throat was among the complaints, there was discovered, upon inspection, a redness of the fauces, sometimes extending to the roof of the mouth, but seldom much swelling. It did not, in general, continue more than three or four days; nor did it usually occasion any difficulty in swallowing.

The soreness of the breast was accompanied, either at its commencement, or soon after, by a dry cough. The soreness was not so universal as the cough; and now and then, in its stead, a patient was found to complain of pain in some part of the thorax, similar to the pain in pleurisy, but less severe. The cough was almost always dry in the first instance. Often it was only a slight hack, but in some persons it was hard and severe. Expectoration commonly followed, but not at any precise period. It was seldom very profuse in quantity, and sometimes so little that it almost escaped observation. The matter expectorated was a thick mucus, such as is commonly produced in catarrh. In a few

persons I remarked that the lungs took no share in this disease; and I noticed this even in one or two persons evidently disposed to phthisis pulmonalis.

In short, the symptoms of catarrh appeared in all the variety which belongs to that disease. The eyes, nose, throat, and lungs were affected either together, successively, or variously combined. But it was not only these parts, which exhibited marks of the disease; several instances occurred to me where the ear was the organ affected. From this there not only issued a mucous or muco-purulent discharge, but in one case a slight hæmorrhage, as happened in other cases from the nose, fauces, and lungs. I do not recollect that the mucous membrane of any part below the diaphragm was affected; unless from such a cause arose a diarrhœa, which others observed in some instances, but which I did not see.

The pulse was commonly increased in frequency, and otherwise was variously affected. On this subject however there was nothing to be remarked peculiar to the disease.

Perhaps nothing is more difficult than for a modern practitioner to determine the natural duration of a disease, or of any particular symptoms; for it is the custom to employ such remedies as must interrupt the course of the disease, whereby its duration will be either increased, or diminished. Scarcely in any instance did I attend a subject of the epidemic longer than a week; several patients I saw only once or twice. But I saw many persons under the disease, without prescribing for them, while visiting others

in the same house. From those who had not received medical advice I endeavoured to learn all I could, both respecting the course of the disease, and its duration. The result of enquiries so made, connected with that of my own observations, was, that the most prominent febrile symptoms abated on the third or fourth day, and were in some instances gone entirely at the end of a week; and that the whole disease continued from ten to fifteen, and even twenty days, when little or no medicine was taken.

The disease was more mild than the influenza has commonly been in this and other countries. It was not fatal to any person within my own observation, nor did it even threaten to be so. I have heard of one or two deaths produced by it; particularly of one old man, who died suddenly in the manner described by Morgagni. As I have learnt, it has extended through a great portion of our country. It has happened to me to see more females affected with this disease than males, in the proportion of three to two. But perhaps females more generally called for professional assistance than males; or other accidents may have affected my very limited observations. I did not see the disease in any considerable proportion among either the aged or the very young.

At the end of March, the disease had almost entirely disappeared. In April, a few cases only of genuine influenza occurred, although very severe and obstinate catarrhs were not rare in that month.

It has been commonly remarked that an epidemic influenza has produced some cases of phthisis pulmonalis, and has hastened the progress of others. I have seen one or two cases only where some apprehensions of such an issue were excited, and these have now recently subsided.

With respect to the mode of treatment, there was necessarily a variety, according to the stage of the disease at which the patient asked for advice, and according to the peculiarity of the symptoms. That, however, which appeared to me most generally useful, was as follows: First, to evacuate the intestinal canal, very freely, for which I ordinarily administered the submuriate of quicksilver, with jalap and aloes; and afterwards to keep the bowels open. Through the whole I directed the use of diluents and farinaceous food; and after the evacuations, prescribed some medicine similar to the following:

R. Pulveris scillæ maritimæ exsiccatæ, gr. viii.
Tartritis Antimonii, ... gr. i.
Pulveris Opii, ... gr. ii.
Mucilag. G. Arab. q.s.
Misce, fiant pilulæ, No. vi.

Of these, from one to four were taken in a day, according to the severity of the disease, particularly of the cough.

In a few cases, I administered emetics with advantage. For some, vesication appeared beneficial in relieving pressing symptoms. Where there was a dry cough, with a sense of soreness in the breast, there was evident benefit derived from a mixture of

oil of almonds with preparations of squills, opium, and antimony. I did not bleed in any instance, nor have I been led to regret this omission. As some doubts have been expressed respecting the utility of opium in this disease, I paid particular attention to that subject. It appeared to me that no inconvenience arose from the use of it, and that it was commonly beneficial when the bowels were open.

ARTICLE III.

FACTS

RELATING TO THE

SMALL POX AND KINE POCK,

By PARDON BOWEN, M. D.
Of Proivdence, R. I.

READ OCTOBER 1808.

AGREEABLY to your request, I now transmit to you, for the information of the Massachusetts Medical Society, such information as I have been able to obtain, respecting the practice of Vaccination in Pawtucket; observing that my partner, Dr. John M. Eddy, and myself, had the charge of the Small Pox Hospital, on the west or Rhode Island side of the river, and of course were in the way of obtaining much information on the subject.

IT will be proper to premise, that before the late appearance of small pox, in this village, a very considerable number of the inhabitants had been vaccinated, at different periods, for several years past. About the middle of January, 1808, a girl was attacked with the small pox. As it was not known what the disease was, and as she was not removed from her

dwelling, many persons were exposed to the infection; and soon after, eight more were seized with the small pox, who lived in different parts of the village. Of course many of the inhabitants were exposed to the infection; but it uniformly proved, that every person who had been previously vaccinated, escaped the disease. Those who had not been vaccinated, and had been exposed, amounting to nearly fifty persons, went immediately into the hospital, and were inoculated for the small pox; whilst the inhabitants, almost universally, were vaccinated, within a week or two. And in no instance did any of them take the small pox; although from the circumstance of its breaking out in so many different parts of the town, there was the greatest probability that it would have spread very generally, from the compact situation of the houses, unless its progress had been arrested by the general diffusion of vaccination. These circumstances afford proofs, rather of the negative kind; but fortunately we have several cases that supply proofs of the most positive nature. Captain John Field had a son attacked with small pox, severely. He had a large family of ten children; and his wife and nine children, who never had the small pox, were constantly exposed to the infection, from the one who was seized with it. They were all sent into the hospital, which my partner and myself had the charge of. Among the number were his two eldest sons, who had been previously vaccinated; one of whom took the principal charge of the lad with the natural small pox; he lifted him,

fed him, and was about him on all occasions; and after his admission into the hospital, was daily inoculated with fresh variolous matter, taken from the recent pustule, and instantly inserted. The same process was pursued with the other brother, who had been previously vaccinated; and after keeping them in the hospital upwards of a fortnight, they were both discharged, without the least appearance of small pox, and have remained well ever since.

We had another case also in this hospital, proving the power of the kine pock, to prevent the small pox. The circumstances were of so singular a nature, that I think the case worth recording. The wife of Mr. John Aldrich, had been, amongst the rest of our patients, exposed to the small pox, and was taken into the hospital and inoculated, with the others, with fresh variolous matter, taken directly from a patient, in its most active state; and as the inoculated part did not put on the usual appearance, as when the infection has taken effect, I repeated the inoculation for several days successively, but with no better effect; and observed to her that there was something very singular in her constitution, as the variolous matter, although fresh, and active as it respected the other patients, produced no effect upon her. She then smilingly said, she did not know but that she had had the kine pock. I asked her if she had ever been inoculated for it. She answered that she had not. Had she taken it directly from the cow? No. But about two years before, two of her children had vaccinated them-

selves in their hands, which became sore; and that with a bowl of warm water and a rag she had washed the sores; and that, in a day or two, she observed a small scratch, on one of the knuckles of the right hand, which began to itch, and became a little elevated; and that it gradually and regularly increased, till about the eighth or tenth day, when a severe inflammation extended, with pain in the axilla; and she became quite indisposed with the usual symptoms of kine pock. At this period Doctor Manchester saw her; and it appeared to him that it was a case of genuine kine pock. This lady was kept in the hospital, over a fortnight, among the whole of the small pox patients; was repeatedly inoculated with fresh matter; and went out without receiving the small pox. I regret very much that this patient has forgotten the period of the kine pock when the ablution took place; and more especially the quantity of water used, and the number of times the rag was dipt into it, after wiping the sores; as by these circumstances we might form some better idea of the relative proportions of the vaccine material to the water; and thereby be enabled to obtain some useful practical information. The proportion, at any rate, between the kine pock matter and the water must have been very small indeed; and small as it was, it completely answered the purpose of communicating the disease. This circumstance is also confirmed by the experiments of the Abbe Spallanzani, who was able, with an inconceivably small portion of the sperm of the male frog mixed

with water, to impregnate the tadpole taken from the female.

In the hospital, on the opposite side of the river, there were, also, several patients who had been previously inoculated for the kine pock. These were repeatedly inoculated with fresh variolous matter; kept in the hospital a fortnight; and sent out without any symptom of small pox.

Before closing this letter, I will mention one other case, the particulars of which I procured of Dr. Davenport. Lucy Bucklin was vaccinated, on Monday the 15th of February, and remained well until Sunday the twenty first; when she was seized with cold fits, head-ache, &c. and broke out with the small pox on the succeeding Wednesday, the tenth day from her vaccination. The first symptoms of the small pox began on the seventh day from her vaccination, a period, it appears, too short to enable the kine pock so to act on the system as to prevent the small pox from going its course. There was nothing remarkable in this case, except that the inoculated part had the appearance of the spurious kine pock.

ARTICLE IV.

SINGULAR CASE

OF

EPILEPSY.

BY MATTHIAS SPALDING, OF AMHERST, N. H.

READ FEBRUARY 22d. 1809.

NOVEMBER 17th, 1807. Samuel M'Conihe of Merrimak, N. H. aged about thirty years, naturally of a good constitution, consulted me respecting some complaints, with which he was very much troubled and alarmed.

HE informed me that, for nearly two months past, he had been strangely affected by a kind of fit, which so deprived him of strength at the moment, that he often fell to the ground, unless prevented by by-standers; and that an uncommon degree of sleepiness often came over him, which he had no power to resist. On careful examination, I found his pulse at seventy in a minute: not hard, nor remarkably weak. His tongue was not coated, his skin looked and felt well, and his eyes were free from inflammation; but his countenance looked a little fallen.

He told me that his appetite and habit of body were good, that he felt no acute pain, that he slept well, and felt his strength but little if any diminished.

I inquired his busines, and manner of living. He informed me, that, for a number of years past, he had led rather a studious, sedentary life; but for the year past, he had principally worked at farming; and that he had enjoyed a pretty good state of health, till the time above alluded to, when, in a moment of merriment and laughter, the first fit made its attack. His countenance suddenly changed, and he would have fallen to the ground, had not the by-standers caught, and prevented him. He very soon, however, recovered his countenance and vivacity. Not long after, he was attacked again, much in the same manner. And these fits were repeated, again and again, and at shorter intervals, till at length he had one almost every hour.

About this time, the sleepiness before mentioned came on. This attacked him in a singular manner; for in whatever situation, or under whatever circumstances, whether sitting, standing, walking, riding, conversing on, or attending to any subject, however interesting, it made no difference; he instantly lost the subject, and fell asleep. If any person shook him, he awoke, and appeared perfectly well; if not interrupted, he slept soundly for the space of five, ten, fifteen, or more minutes. What renders it a little extraordinary is, that during this sleep, he dreamt, and had a perfect recollection of what he dreamt.

At first, he had no intimation of the approaching fit; but after they had continued for a time, he discovered that they were usually preceded by a twitching of the muscles of the face; and though he felt no pain in the commencement of them, yet, when they had continued several weeks, he perceived pain in the upper and fore part of his head, which became more severe as the fits were repeated.

During the fit, though entirely deprived of strength and motion, not being able to lift a finger, he perfectly heard and understood all that was said and done about him. Another circumstance, and perhaps worthy of remark, is, that whenever he changed his mode of thinking, or train of ideas; when he changed objects of the mind for those of sense; when he changed temperature of atmosphere, that is, went from a warm room into a cold one, or into the external air; from the external air into a warm room; when a stranger came in, or he met one on the road, he seldom failed to have a fit.

These fits were not all of the same duration, nor violence; but became more so as they were repeated. He was not sensible, for a long time, of having any during sleep; but was at length convinced of it by a friend sleeping with him. He was not convinced of this till some time after my first seeing him.

At my first examination of this case, finding the pulse so perfectly regular and good, and not the least appearance of inflammation, even about his eyes, I thought it improper to bleed; but directed him to make use of electricity, blisters about the

neck, and a pill of calomel, containing one or two grs. at bed time. He continued this plan nearly three weeks, but not regularly. At first it appeared to relieve him, especially of the sleepiness; but towards the last of the three weeks, had but little or no effect. He now expressed a wish to see Dr. Warren, of Boston; and also wished I would write my opinion of his case, and what I had done for him; which I did.

He was gone about twelve days; and returned, but not so well as when he went. His fits were more frequent, and more violent; and his countenance and strength very much sunken. He brought me a letter from Dr. Warren, stating as follows:

"I have very carefully attended to Mr. M'Co-
"nihe's complaints, from day to day, whilst he has
"been in town; have seen him in several of his
"paroxysms; am fully satisfied, that, though variant
"in some degree from the common form of that
"disease, yet it evidently partakes of the character
"of Epilepsy." After mentioning some things with regard to diet, exercise, &c. the doctor says, "The
"medicine, I should principally rely upon for a cure,
"is the nitrate of silver. Of the nitrate, one grain,
"to an ounce of distilled water; beginning with ten
"drops, three times a day; and increasing one drop
"each dose, till some sensible effect should be pro-
"duced. A seton or issue to be placed in the back
"of the neck, and blisters to be continued in the
"neighbourhood, vol. ammoniæ, &c. Cold bathing
"or showering, if the season will allow." But after

all, he concludes, " I am of opinion, that the disor-
" der will not very readily yield to any method of
" treatment that can be advised; and there may be
" some reasons to doubt whether it may not termi-
" nate in apoplexy."

On the 23d of December, I commenced giving the nitrate of silver, with g. camphor and the vol. salts of ammonia; and ordered a blister to the back of the neck. The nitrate was gradually increased, from ten drops at a dose three times a day, to an hundred drops three times a day, without much interruption; which took place about the first of February. The nitrate, on the first day of taking it, produced a burning sensation at the stomach; but afterwards he felt no more of it, till it had been increased to near an hundred drops, when he began to feel the same sensation again in the stomach, accompanied with sharp darting pains, which evidently arose from the nitrate. During the space of taking the nitrate, his strength rather increased, and his fits moderately abated, but did not cease. As they became less frequent, they were less violent, and his appetite pretty good. When he had arrived to an hundred drops, three times a day, the sharp darting pains in the stomach became so distressing, that I ordered him to lessen the dose in the same ratio it had been increased. He continued this plan about ten days; but finding his complaints rather more troublesome, I thought best to make trial of the extract of stramonium, or thorn apple. February 11th, he began taking the extract in pills, one

grain each. Of these he took one, morning, noon, and night, with orders to increase the dose till some sensible effect should be produced; and also to continue the use of the nitrate, lessening the dose for a short time. The stramonium had a surprising effect. He had not taken it more than four or five days, before the pupils of his eyes were very much enlarged, and almost total blindness, for a short space after each dose, ensued. He also complained of a peculiar dryness of the tongue and throat, with some little giddiness. Here his fits entirely left him for a while, though he had not increased the stramonium to more than two or three grains, at furthest, at a dose. Being much alarmed about his eye-sight, he soon began to lessen the dose; and towards the last of February thought himself so well, as to cease taking it entirely. He continued the vol. ammoniæ and camphor; and also took some of the tincture of cantharides, as he felt a little dull and heavy about the head. In order to relieve this complaint, I gave him a snuff, composed of turpith mineral and stick liquorice, finely rubbed together. He continued free from fits; but still felt a dull heavy sensation about the head, though blisters had been constantly applied in the neighbourhood.

March 7th. I put a seton in the back of his neck; but it did not relieve his head; and from being much exposed, and from taking cold, as I apprehend, his fits returned again.

On or about the 20th of March, I advised him to try the stramonium again. It had the same effect as

before in stopping the fits; but with a less quantity at a dose. I wished him to continue the stramonium, in small doses, for a while. He remained comfortable, and able to attend to business; but did not feel free from the dulness above mentioned; and and sometimes had a little nausea at his stomach.

April 8th. I gave him an emetic. It operated kindly; but still his head felt heavy.

On the 22d April, I commenced giving Fowler's mineral solution. This, with the stramonium, answered extremely well; for he soon began to feel more sprightly and active. His dull heavy feelings disappeared, his strength gradually returned, and in two or three weeks he left off his medicine. I saw him a few times after this. His countenance looked well, and he appeared healthy and strong. Towards the last of June he called on me, and told me he continued free from his fits, and that he was just setting out for New York, and the southern states on business. I have heard nothing of him since.

ARTICLE V.

A REMARKABLE CASE OF OVARIAN SCHIRRHUS, AND ENCYSTED DROPSY.

BY DR. AMOS HOLBROOK, OF MILTON.

READ FEBRUARY 22d. 1809.

S. F. aged thirty years, of a healthy constitution, having borne two children, the last in September, 1804, recovered well, and continued so till some time in the latter part of 1805; when she first began to complain of pain in the left hypogastrium, which gradually increased till it produced paroxysms of distress at intervals, without any periodical regularity, so severe as almost to deprive her of the voluntary use of her limbs and muscles. The pain was excruciating in the lower part of the abdomen, running down the pelvis, particularly affecting the genital organs, and rectum. When the pain abated she was able to follow her domestic employment, till the recurrence of a succeeding paroxysm, which commonly happened in the course of two or three weeks, with-

out her being able to assign any probable cause, or to obtain any essential relief, by medical aid. In the summer, 1807, the pain became more constant, and afflicting; when she perceived a swelling or enlargement in the left hypogastrium, which gradually increased. In the autumn following, her abdomen was frequently and suddenly distended, and became very tense; and as suddenly subsided, except the local hardness on the left side. For all which she took various medicines, at different times, as her peculiar situation occasionally was judged to require, without permanent relief. In the latter part of December, in the same year, in the course of a few hours, her abdomen became as large as a woman in the last stage of pregnancy; and so continued, without perceptible extenuation. The very sudden enlargement, gave suspicion that tympanites was the cause. But after several weeks continuance, and repeated examination, there was every reason to conclude it to be a watery fluid. Accordingly, on the 24th February, 1808, she consented to the test by puncture with the trocar; which evacuated thirty one pounds and four ounces of a gelatinous and ponderous fluid, nearly of a chocolate colour, interspersed with white filamentous and small lumpy substances, similar to cellular substances, discharged on opening many abscesses.

The abstraction of the fluid reduced the abdomen to near the natural size; when stimulant applications applied to the external surface, tonics taken internally, and a generous diet with wine, restored her

to a more comfortable and easy state; with good pulse, and increase of strength, for near a fortnight. But as the swelling began to re-appear, and continued rapidly to increase, till March 27th ensuing, it then became urgently necessary to repeat the operation, by reason of the burden and distress it produced. The result of this, and of all the succeeding operations, I have stated in a table annexed.

It became necessary to repeat the operations of paracentesis abdominis in succession, at such times as the case unavoidably required, for the preservation, comfort, and continuance of her life. They amounted to twenty nine operations in eleven months, from February 24th, 1808, to January 21st, 1809; and the whole quantity drawn in that time, was six hundred and thirty five pounds and eight ounces. She always bore the operations without being faint, or the occurrence of syncope, and her strength continued beyond reasonable expectation, till July 4th. She was then suddenly attacked with hemiplegia, which almost deprived her of the use of her right side, for several weeks; but although she gradually and partially recovered from this, the decline of strength, and emaciation of body continued. During the whole time of her sickness, she menstruated regularly, till the month of September, previous to her death. She was not subject to severe costiveness; but her urine in general was deficient, though at intervals copious. Her appetite was good, and she always took some sort of food with much relish, except when she became so filled and distended as

to distress her stomach, and cause puking. This generally happened a day or two before the artificial evacuation. In the last weeks of her life, from increased debility, she could not suffer so large a quantity to collect as before; and it became requisite to draw it oftener. This viscid and gelatinous fluid was, at every operation, very like in appearance, except in shades of colour, sometimes more light, but generally of the chocolate resemblance. After two or three of the first evacuations, it became more purulent; and usually from one quarter of a pound, to half a pound of matter, like pus, flowed at the last running through the tube. She died January 28th, 1809.

On the 30th, leave was obtained to inspect the body. On first opening the abdomen, there flowed out several pints of thick liquid, similar to that which had been drawn in life. When a sufficient incision was made through the abdominal parietes, a very firm and total adhesion was discovered of the peritoneum anteriorly, to a substance that occupied almost the whole of the abdomen. After separating the adhesion from this preternatural formation, it was found to cover all the viscera, so completely, that no vestige of them was to be seen. It extended from the pelvis, to the scrobiculus cordis, pressing the intestines, and crowding them from their natural situations. The liver and stomach were forced up against the diaphragm, and that muscle itself elevated unnaturally into the thoracic region, so as to lessen the natural space and dimensions of those

cavities. It adhered also in many places to the coats of the intestines and omentum, which were not much extenuated, and laterally to the peritoneum of the hypogastria. It was attached very strongly to the iliac vessels of the left side, and to the bladder of urine; but more especially to the fundus uteri, where the union was very thick and firm, with much morbid thickening of the inflections of the peritoneum, and cellular substance, in and about the pelvis; so as to exhibit the appearance of a confused mass. The uterus rested in the pelvis, in its natural situation, with the right fallopian tube and ovarium perfect. The left fallopian tube was apparent at its origin, and near the uterus; but soon disappeared, and was lost in the attachment of this enormous and confused formation. There was no cavity of communication, to be found, between the uterus and this morbid substance. On cutting into the latter, it proved to be a complete sac, near one quarter of an inch thick, with many blood vessels, diversified on its external surface. It cut harder, and more firm, than common flesh, and exhibited schirrhosity. It contained several quarts of purulent, very thick, and much sanious matter, in color similar to what has been noted. The internal surface of the sac was entirely covered, and clustered with semi-globular formations, resembling tumours, hard at their bases, and spongy on their projecting parts, with remarkably villous surfaces, plentifully discharging the aforesaid matter, from the size of half an egg, to eight times that size; so that the

whole sac internally was in a complete state of ulceration. On the posterior part of the sac there was an aperture of the size of the end of a man's finger, which had, for some short time past, given vent partially to the confined contents, amongst the bowels, and produced the discharge above mentioned, when the integuments and muscles were first cut through. No doubt this new opening was corroded in the most thin part of this prison, by some peculiar acrimony it contained, which very probably hurried on the exit of the patient. This diseased enlargement of the ovarium, when detached from the body, and emptied of its contents, weighed nine pounds and three quarters, avoirdupoise.

The light this examination gave, not only elucidated her complaint more satisfactorily, but was positive proof, that at each operation, (which was generally performed in the usual place, in the left abdominal side,) the instrument not only penetrated the natural wall of the part, but passed through the distended sac also, which so firmly adhered to the peritoneum, and by that means always discharged its contents.

TABLE OF OPERATIONS,

REFERRED TO IN PAGE 31.

No. operations.	Date.	Quantity.	No. operations.	Date.	Quantity.
	1808.	*lbs.*		1808.	*lbs.*
1	*February* 24	31 1-4	17	*October*....17	23
2	*March*.....27	27	18	26	21
3	*April*.....22	19	19	*November* 5	22
4	*May*.....16	22	20	13	19
5	29	20	21	22	20 3-4
6	*June*.....12	21	22	30	21
7	27	23	23	*December*..8	21 1-2
8	*July*.....10	21	24	17	20
9	22	21	25	25	24
10	*August*.....4	23 3-4		1809.	
11	14	26	26	*January*.....1	22
12	25	21 1-2	27	8	20
13	*September* 4	24 1-4	28	15	15
14	14	26	29	24	9 1-2
15	26	24		*lbs.* 635	1-2
16	*October*.....8	26		*drawn off during life.*	

ARTICLE VI.

[The late prevalence of a disorder in Hartford, similar to that described in the following paper, has induced us to republish it, from the Medical and Agricultural Register.]

THE HISTORY OF

A SINGULAR AND VERY MORTAL DISEASE,

Which lately made its appearance in Medfield.

Symptoms of the disorder—Its progress and termination—Appearances on dissection—The different methods of treatment, and what eventually proved successful: communicated

BY DOCTORS L. DANIELSON AND E. MANN,

Attendant Physicians on the Sick.

In conformity to the demand which society has on the united exertions of all, to ameliorate the condition and alleviate the distresses of humanity, the undersigned think proper to submit the following history of facts, relating to the disease which lately made its appearance in Medfield, with the *methodus medendi* proceeded on in each case; giving in detail the consequences, which followed, and leaving it with the speculative inquirer to draw his own conclusions relative to the nature and origin of the disorder. The similarity of symptoms in nine cases, which proved fatal, all between the 8th and 31st of March, 1806, has been so great, as to render a particular detail of each unnecessary; we shall, therefore, give only a concise history of the mode of attack, and progress of the symptoms, generally.

WITHOUT any apparent predisposition, the patient is suddenly taken with violent pain in the head and stomach, succeeded by cold chills, and followed by nausea, and puking; matter discharged from the stomach of no unusual, or morbid appearance; respiration short and laborious; tongue a little white toward the root, and moist; velocity of the blood increased, with a very sensible diminution of momentum in the radial, while in the carotid arteries it was much augmented; and in a child of fifteen months old, a very violent pulsation was discovered at the fontanel; the eyes have a wild vacant stare, without much, if any appearance of inflammation; the heat of the skin soon becomes much increased, yet the skin is not remarkably dry: these symptoms are accompanied by a peculiar fearfulness, as if in danger of falling from the bed or nurse's arms, and continue from six to nine hours, when coma commences, with increasing debility; extremities become cold; livid spots, resembling petechiæ appear under the skin, on the face, neck, and extremities; pulse small, irregular, and unequal; spasms occur at intervals, which increase in violence and frequency in proportion as the force of the circulation decreases; at this time the eyes appear glassy, and the size of the pupil varies suddenly, from almost wholly obliterating the iris, down to the size of a millet seed, and then again as suddenly dilating. These symptoms seem to mark the second period of the disease, and continue from three to five hours. The third and last stage is distinguished

by a total loss of pulsation at the wrists; livid appearances become more general; spasms more violent; coma more profound; death. The patient has in general continued in the last stage from six to twelve hours.

In the treatment, different methods were used. At first it was thought advisable to evacuate the stomach and bowels, and to exhibit bark and wine as speedily and freely as possible. This mode was followed in the three first cases that received medical advice,* in all which it was found ineffectual: the patients seemed invariably to sink faster after each evacuation, and the stimulating powers of the bark and wine were found to be either too feeble, or too slow in action to produce any good effect.

Case 5.—In this case the attack was more gradual, and the symptoms more mild, than any which preceded or followed it. Convinced not only of the inefficacy but of the absolute injury of evacuations, in those cases which had gone before, it was determined to lose no time in exhibiting evacuants, but to commence the stimulating process immediately: accordingly the child (aged three years) was directed to take calomel three grs. opium half a gr. mixed, once every three hours; bark and wine in as large quantities as the stomach would bear. This method was followed for several days, until she had taken an hundred grains of calomel. Notwithstanding the liberality with which the medicine was introduced, the mouth was not affected, nor any purging

* The first subject was in the pangs of death when first seen.

produced. The extremities were blistered largely; and the child was frequently immersed in a warm decoction of white oak bark, for ten or fifteen minutes. The length of time which this child continued gave us some hope of recovery, as her life was prolonged eleven days from the attack, when she failed in the same manner as the others had done. Whether it was owing to the mildness of the attack, the peculiarity of constitution, or the herculean treatment employed in this case, which prolonged her existence, we cannot determine; this however is certain, that the sixth case, a child of two years old, of a robust and healthy constitution, failed in twenty-six hours, under the same mode of treatment.

In the seventh case, affusion of cold water was added to the above treatment, with a like want of success, as the child lived only twenty-seven hours from the accession of the disease. In the two following it was thought advisable to assist the natural efforts to puke with an infusion of camomile flowers, and to discharge the contents of the rectum by a clyster; after which turp. min. æth. ammon. musk, blistering the whole head, embrocating the extremities with spt. terebinth. spt. sal am. tinct, canthar. mixed, were tried, and found alike unavailing.

In the last case, a child of fifteen months old, on account of the *very violent pulsation* discovered at the fontanel, about an ounce of blood was taken from the jugular vein; the effect was unfortunate; the child seemed to fail faster, even from this small de-

pletion, and died within twelve hours from the attack.

This last mentioned case closed the fatal scene, yet did not lessen our fears, and gave strength to the alarm which had fastened on all, and which had gained such complete ascendency over every prospect of success, that it would be impossible to describe the impressions made on the minds of tender parents and affectionate friends for the safety of their children and connexions.

Two days after this last fatal case, we were called to visit a female child, aged three years and four months, which case was so distinctly marked that scarcely a ray of hope existed that the issue would be favourable; and all who had witnessed the effects of this terrific malady, viewed this child as it were in the article of death, her symptoms being almost as violent as any, and more so than some of the preceding cases. As the means which we had hitherto used had uniformly failed us, we thought ourselves justified in leaving them, and trusting wholly to *Fowler's mineral solution* and wine; accordingly the child took, in about three-fourths of an hour after the commencement of the disease, *two drops* of the solution in a table spoonful of wine, and in half an hour she ceased complaining of pain, became more lively, and in fact the only remaining symptoms of disease were a very small, quick, and irregular pulse, accompanied with a dull, heavy appearance of the eyes. After the exhibition of the medicine, she was directed to take one drop every

two hours, and to take wine freely. This course was continued for eighteen hours succeeding the attack, during which time the child seemed free from pain, and got a tolerable night's rest. The second day; child evidently better, and had some appetite; pulse still remarkably small, and had been, after a small evacuation from the bowels, quite imperceptible at the wrist; eyes still dull; same medicine, gradually diminishing in quantity, was continued for five days, at which time, and not before, had the pulse regained a healthy standard, the eyes their usual vivacity, and the patient was considered out of danger, if not perfectly well. Since this we have had three or four other cases, in all of which we have placed our whole reliance on the *solution*, and are happy to have it in our power to say, that, from a similiar exhibition of this *medicine*, all our patients have recovered.

Examination by dissection was made on five bodies of patients, who died of the above described malady.

The first examination was made on a boy ten years old, seven hours after death, whose case was strongly marked, terminating in twenty two hours. On removing the cranium, and dividing the dura mater, there was discharged, by estimation, half an ounce of a serous fluid. The dura and pia mater in several places adhered together, and both to the substance of the brain. The veins of the brain were uncommonly turgid with a fluid similar to that which was discharged from between its membranes,

and the substance of the brain itself remarkably soft, offering scarcely any resistance to the finger when thrust into it: the cerebellum also was found in the same state. The stomach contained about six ounces of a dark fluid resembling coffee grounds, and its villous coat was nearly in a state of dissolution. The lungs were rather darker than usual; otherwise all the viscera, both of the thorax and abdomen, were in a healthy state.

The second examination was made twelve hours after death, on the body of a girl of five years old, of the same family, and sick at the same time, and whose case was also strongly marked. Between the dura and pia mater was effused a fluid resembling pus, both over the cerebrum and cerebellum the veins of the brain were turgid with blood, and the hemispheres adhered together with considerable strength. These were the only morbid appearances within the cranium. The appearance of the stomach differed in nothing from that of the preceding case, only that the villous coat was not so tender. The abdominal and thoracic viscera were apparently healthy.

In the three other cases that were examined, nothing peculiarly morbid was discovered in any part of the system, excepting that the veins and sinuses of the brain were found remarkably turgid with a dark coloured blood.

ARTICLE VII.

ACCOUNT OF AN

UNCOMMON DISEASE,

WHICH APPEARED IN GENEVA, IN THE WINTER AND SPRING OF 1805. *

It commenced suddenly, by a prostration of strength, which was often extreme. The countenance collapsed, pulse weak, small and frequent, sometimes almost imperceptible; in a few cases hard and elevated. Violent pain in the head, especially the forehead; afterwards heart-burn, vomiting of green matters, pain along the spine, and with infants, convulsions. In bad cases the loss of reason succeeded these symptoms. The course of the disease was rapid, whether its termination was by death, or by cure. In the first case, the disease lasted from twelve hours to five days, but never more. In the second, it was often as short in duration; but sometimes it seemed to take the course of a common bilious fever, and sometimes it assumed the type of an intermittent fever.

With the greater number of patients, who died in twenty four hours, the body was covered with

* Translated from the Paris Journal de Medecine, &c. This disease was not confined to any portion of Geneva; but extended through the city, and to the neighbouring country. It was called malignant cerebral fever, not contagious. From March 16th, to May 8th, about thirty died of it in the city, besides those in the country.

violet-spots at the moment of death, or a little after; and sometimes before death. It is to be remarked, that these violet-spots appear often in cases of sudden death. Whether the disease be or be not of a peculiar malignity.

Under some circumstances, the invasion of the disease, properly so called, was preceded by headache, followed by a remission of uneasiness; but more commonly the disease came without a herald.

The complaint we describe, affected children principally. Many young persons were also attacked; and but few above thirty.

On opening the bodies of the dead, no morbid alteration of the viscera was seen, excepting a turgidity of the cerebral blood vessels.

The first patients perished suddenly; they were assisted too late. After this, emetics, the cinchona, and rarely, blood-letting were the remedies, which were generally adopted, and this method succeeded commonly, if resorted to on the invasion of the disease.

ARTICLE VIII.

A CASE OF OBSTINATE

TONIC SPASM,

CURED BY ELECTRICITY.

BY DR. MATTHIAS SPALDING, OF AMHERST, N. H.

COMMUNICATED

BY DR. E. A. HOLYOKE.

READ FEBRUARY 1st. 1809.

HAVING had several cases, in which I have tried the influence of electricity, and having witnessed its good effects upon most of them, I beg leave to transmit one of them, which I think worthy of notice.

SARAH DINSDELL, aged about ten years, was brought to me, at Chelmsford, November 22, 1804, with contraction, and total loss of use of the lower extremities. Her legs were much emaciated; her heels were drawn quite back to the nates, and so firmly fixed, that the cuticle was worn off, for some distance, between the leg and thigh. I endeavoured to separate the leg from the thigh; but could not, without doing violence to the muscles or joint. She had, in great measure, lost her eyesight and her reason. Her mother informed me, she had been in this

situation about twelve months; that she had previously been very healthy and sprightly; that her first complaint was that of the bowels, with slight fever; that shortly after, she was attacked with violent spasms, which not only drew her limbs into the situation I then found them, but almost entirely deprived her of sight and reason; and that she had continued in that state to the present time, notwithstanding she had had the advice and attention of several respectable physicians. I inquired if electricity had been applied. She said it had not.

Having seen the good effects of electricity in spasmodical contractions, while at the hospitals in London, I thought it might be a proper application in this case. I therefore placed the girl on the insulated chair, and connecting her with the prime conductor, drew sparks from the part affected by the ball of the director. I sometimes varied the mode of application, by connecting the chain with the cushion, and also, with the patient when insulated, causing a current of electric fluid to pass through the affected parts; and also, by giving a small shock, occasionally. I continued this mode for the space of a fortnight, though not every day, (as the weather was not always good) without producing any essential alteration; excepting that the patient appeared to feel it more sensibly, and the skin appeared to be softer. I continued its use with some intermissions, much in the same way, for another fortnight, when I was pleased to find the heels had separated from the nates, an inch or two. In

another fortnight, the same mode being continued, the legs were at right angles with the thighs. At the end of the seventh week, her legs could be straightened; and in eight weeks she walked about the room. What was still more surprising, and highly gratifying, soon after the legs became flexible, the eyesight and reason both returned. I continued the electricity, occasionally, for a few weeks longer. Her limbs soon assumed their natural shape and size, and she appeared perfectly healthy and active. I saw her mother more than a twelvemonth after, and she informed me, that her daughter continued perfectly well and sprightly.

DURING the application of electricity, her mother was obliged to be absent. On seeing her child restored, her joy was inexpressible; she fainted with astonishment.

I INTENDED giving you another case of schirrous testicle, cured by electricity, but shall omit that till some other opportunity. I could produce many remarkable instances of the good effects of medical electricity, when long continued. The failure of this part of medicine, I think, has been greatly owing to the shortness of its application.

BILL OF MORTALITY,

FOR AMHERST, MASS. FOR A. D. 1803.

BY ROBERT CUTLER, M. D. OF AMHERST.

COMPLAINTS. AGE.	*Males*.....	*Females*....	*January*....	*February*..	*March*.....	*April*.....	*May*.....	*June*.....	*July*.....	*August*.....	*September*	*October*....	*November*	*December*.	*Total*.....
Atrophia, 54 *y.* 6 *m*.....*years*	1	1		1	1										2
Convulsions, 2 *d.* 20 *y.* 13 *m*.....*years*		3										1	2		3
Consumption, 47 *y.* 15, 29, 66, 11, 60 *years*	1	5		1		2						1	1	1	6
Croup, 5 *m*.....*years*		1					1								1
Enteritis, 2 *m.* 23.....*years*	1	1		2											2
Fever Bilious, 65.....*years*		1		1											1
Fever Typhus, 3.....*years*		1							1						1
Hooping Cough, 1 *y.* 10 *w*.....*years*	2									2					2
Pleurisy, 30.....*years*	1		1												1
Palsy, 70, 76.....*years*	1	1	1									1			2
	7	14	2	5	1	2	1	0	1	2	0	3	3	1	21

Births, { *Males*, - 32 / *Females*, 28 } *Total*, 60

Marriages, - - - - - 12

Number of inhabitants, 1352, *the last census.*

ARTICLE X.

CASES OF

ORGANIC DISEASES OF THE HEART,

WITH DISSECTIONS.

BY JOHN C. WARREN, M. D.
OF BOSTON.

READ FEBRUARY 1st. 1809.

MORBID changes in the organization of the heart are so frequent, as to have attracted the observation of those, who have devoted any attention to the study of morbid anatomy. Derangements of the primary organ of the circulation cannot exist without producing so great disorder of the functions of that and of other parts, as to be sufficiently conspicuous by external signs; but, as these somewhat resemble the symptoms of different complaints, especially of asthma, phthisis pulmonalis, and water in the thorax, it has happened, that each of these has been sometimes confounded with the former*. The

* A careful examination of the works of some of the most eminent English practical writers does not afford evidence of any clear distinction of these diseases of the heart. Dr. Cullen, whose authority is of the highest estimation, evidently enumerates symptoms of them in his definition and description of the hydrothorax. In § 1702 Th. and Pr. he places much confidence on a particular sign of water in the chest, and remarks, that the same sign is not produced by the presence of pus. Now, there is no sufficient reason, why this symptom should not arise from the presence of pus, as well as from that of water; but it

object of the following statement of cases is to shew, that, whatever resemblance there may be in the symptoms of the first, when taken separately, to those of the latter diseases, the mode of connection and degree of those symptoms at least is quite dissimilar; and that there are also symptoms, peculiar to organic diseases of the heart, sufficiently characteristic to distinguish them from other complaints.

CASE I.

The symptoms of organic disease of the heart are marked with extraordinary clearness in the following case. The opportunity for observing them was very favourable; and there was every incitement to close observation, which could arise from the important and interesting character of the patient. These advantages will justify an uncommon minuteness in the detail of the case; especially, as the most accu-

probably can depend on neither of those alone. See Morgagni de causis et sedibus morborum, Epist. 16. art. 11. The experienced Heberden says in the chapter "De palpitatione cordis," "Hic affectus manifesta cognitione conjunctus est cum istis morbis, qui existimantur *nervorum proprii esse*, quique *sanguinis missione augentur;* hoc igitur remedium plerumque omittendum est."—"Ubi remediis locus est, ea sunt adhibenda, quæ conveniunt *affectibus hypochondriacis*."

Dr. Baillie's knowledge of morbid anatomy has enabled him to make nearer approaches to truth; yet it will probably be found, when this subject shall be fully understood, that his descriptions of the symptoms of diseases of the heart and of hydrothorax are not quite accurate, and, that with respect to the former, they are very imperfect.

Some of the French physicians have devoted much attention to this subject; especially M. Corvisart, professor in the hospital of La Charite, at Paris, from whose clinical lectures is derived the most important information.

rate knowledge of a complaint is obtained from a successive view of its stages.

The late Governour of this commonwealth was endowed with most vigorous powers of mind and body. At the age of sixteen he was attacked with fits of epilepsy, which first arose from a sudden fright, received on awaking from sleep in a field, and beholding a large snake erecting its head over him. As he advanced in life they became more frequent, and were excited by derangement of the functions of the stomach, often by affections of the mind, by dreams, and even by the sight of the reptile which first produced the convulsions.

At the commencement of the American revolution he became deeply engaged in public affairs; and from that time devoted himself to intense application to business, with which the preservation of his health was never allowed to interfere. In the expedition against Rhode Island, an attack of inflammation of the lungs had nearly proved fatal to him.

In the beginning of the year 1807, he suffered severely from the epidemic catarrh; and a remarkable irregularity of the pulse was then perceived to be permanent, though there is some reason to believe, that this irregularity had previously existed, during the fits of epilepsy, and for a few days after them. In the summer, while he was apparently in good health, the circulation in the right arm was suddenly and totally suspended; yet, without loss of motion or sensation. This affection lasted from noon till midnight, when it as suddenly ceased, and

the circulation was restored. In the autumn he was again seized with the influenza, which continued about three weeks, leaving a troublesome cough of two or three months' duration, and a slight occasional difficulty of breathing, which at that time was not thought worth attention. Soon after, in November, he had one or two singular attacks of catarrhal affection of the mucous membrane of the lungs, which commenced with a sense of suffocation, succeeded by cough and an expectoration of cream coloured mucus, to the quantity of a quart in an hour, with coldness of the extremities, lividity of the countenance, and a deathlike moisture over the whole body. These attacks lasted six or eight hours, were relieved by emetics, and disappeared, without leaving a trace behind.

At this time he began to complain of palpitations of the heart; yet, it is probable, that he had been affected with these before, since he was unaccustomed to mention any complaint, which was not sufficiently distressing to require relief. He experienced a difficulty of respiring, as he ascended the stairs, and became remarkably susceptible of colds, from slight changes of clothing, moisture of the feet, or a current of cold air. His sleep was unquiet in the night, and attended with very profuse perspiration; and, in the latter part of the day, a troublesome heaviness occurred. The sanguiferous vessels underwent an extraordinary increase, or, at least, became remarkably evident. The pulsation of the carotid arteries was uncommonly strong; the radial

arteries seemed ready to burst from their sheaths; the veins, especially the jugulars, in which there was often a pulsatory motion, were every where turgid with blood. The countenance was high coloured, and commonly exhibited the appearance of great health; but, when he was indisposed from catarrh, this florid red changed to a livid colour; which also, after an attack of epilepsy, was observable for two or three days on the face and hands. This livid hue was often attended, under the latter circumstances, with something like ecchymosis over the face, at first formidable in its aspect, and gradually subsiding, till it had the general appearance of an eruption, which also soon vanished.

These symptoms increased, almost imperceptibly, during the five first months of the year 1808. Much of this time was passed in close application to official duties; and it seemed that a constant and regular occupation of the mind had the effect of obviating the occurrence of any paroxysm of disease, as well of epilepsy, as of difficult respiration; and that a very sudden and disagreeable impression generally produced either one or the other. There were, indeed, independently of such circumstances, some occasional aggravations of those symptoms. Some nights, for example, were passed in sitting up in bed, under a fit of asthma, as it was called; sometimes the mind became uncommonly impatient and irritable; the body gradually emaciated; yet the appetite and digestive functions remained principally unimpaired; and persons around were not sensible

of any material alteration in the condition of the patient.

On the approach of warm weather, in June, the violence of the symptoms increased. Paroxysms of dyspnœa occurred more frequently, and were more distressing. They commenced with symptoms of slight febrile affection, such as hot skin, hard, frequent, and more irregular pulse, disordered tongue, loss of appetite, and derangement of the digestive functions. This kind of paroxysm lasted two or three days. Evacuations of blood from the nose and hæmorrhoidal vessels, which before rarely occurred, became frequent; a fulness at the upper and right side of the abdomen was sometimes perceptible, formed apparently by temporary enlargement of the liver; the difficulty in ascending an eminence increased sensibly. In the intervals of these attacks, which were variable, but generally continuing ten or twelve days, the strength was frequently good, and accompanied by a great flow of spirits, and an aptitude, or rather ardour, for business.

Such was the course of this complaint until the latter part of August, when a very severe paroxysm occurred. It commenced, like the former, with febrile symptoms, but those more violent than before. The countenance became high coloured; the dyspnœa excessive, and rendered almost suffocating by a slight movement, or attempt to speak; the pulse hard, very irregular, intermittent, and vibrating; and the digestive functions were suspended. These symptoms soon increased to the highest

degree. The respiration was so distressing, as to produce a wish for speedy death; the eyes became wild and staring. No sleep could be obtained; for, after dosing a short time, he started up in violent agitation, with the idea of having suffered a convulsion. During the few moments of forgetfulness, the respiration was sometimes quick and irregular, sometimes slow, and frequently suspended for the space of twenty five, and even so long as fifty seconds. At the end of three days the febrile heat was less permanent; the red colour of the face changed to a death like purple; the hands and face were cold, and covered with an adhesive moisture; the hardness of the pulse diminished, and a degree of insensibility took place. I seized this opportunity to examine the region of the heart, which had not been done before, from fear of alarming the active and irritable mind of the patient. The heart was perceived palpitating, obscurely, about the 7th and 8th ribs; its movements were very irregular, and consisted in one full stroke, followed by two or three indistinct strokes, and sometimes by an intermission, corresponding with the pulse at each wrist. The pulsation was felt more distinctly in the epigastric region. During this paroxysm a recumbent posture was very uneasy, and the patient uniformly preferred sitting in a chair. When the recumbent posture was assumed, the head was much raised, inclined to the right side, and supported by the hand; the knees were drawn up as much as possible. He could not bear an horizontal posture; nor

did he ever lie on the left side, except a short time after the application of a blister. At the end of the fifth day his sufferings abated, but the sudden affusion of a small portion of a cold liquid on the head produced a severe fit of epilepsy. This was followed by a return of the symptoms equally distressing, and more durable, than in the first attack*.

This violent agitation gradually subsided, and was followed by a pleasant calm. The natural functions resumed their ordinary course; his appetite returned; his enjoyment of social intercourse was unusually great; and he amused and instructed his friends by the immense treasures of information, which his talents and observations had afforded him, and which, he seemed to feel, would soon be lost. At the end of September the feet began to swell, and after some time the enlargement extended up to the legs and thighs, and increased to an extraordinary degree; the abdomen next swelled, and, after it, the face. Toward the end of October there were some indications of water in the chest; there was a constant shortness and difficulty of breathing; the cough, till now rare, became more frequent and troublesome; the contraction of the thoracic cavity rendered the action of the heart more painful, to that

* During this time it was thought adviseable to acquaint his friends, that an organic disease of the heart existed, which doubtless consisted in an ossification of the semilunar valves of the aorta, attended, perhaps, by enlargement of the heart; that the disease was beyond the reach of art, and would prove fatal within three months, possibly very soon; that if it lasted so long, it would be attended by frequent recurrences of those distressing symptoms, general dropsical affections, and an impaired state of the mental faculties.

beside an uniform stricture across the breast, he sometimes described a dreadful sensation like twisting of the organs in the thorax. He suspected the existence of water there, and was inclined to consider it as his primary disease, but was easily convinced of the contrary. At one time he had a suspicion of a complaint of the heart, and, although he had never heard of a disease of that organ, slightly intimated it to one of his friends, and mentioned a sensation he had experienced in the chest, which he compared to a fluid driven through an orifice too narrow for it to pass freely. In this month, beside the dropsical affections and increase of cough, he had occasional painful enlargements of the liver, frequent starting up from sleep, a slight degree of dizziness, a great disposition for reveries, and sometimes extraordinary illusions, one of which was, that he was two individuals, each of whom was dying of a different disease. This idea often occurred, and gave him much uneasiness. He was also afflicted with long continued frightful dreams, and sometimes a slight delirium.

After the use of much medicine, on the 6th of November, the effused fluids began to be absorbed, and passed out through the urinary organs with such rapidity, that on the 12th the dropsical enlargements had nearly disappeared. The pulse was much reduced, in hardness and frequency, by the medicine, and, as it fell, he became more easy. On the 10th the state legislature convened, and the call of business roused, like magic, the vigor of his mind; and the

symptoms of his disease almost disappeared. During this session he made little complaint, dictated many important communications, and attended to all the duties of his office, without neglecting the most minute. As soon as the legislature adjourned, he declared, that his work was finished, and that he had no desire to remain longer in this world. He entreated that no farther means should be used to prolong his existence, and immediately yielded himself to the grasp of disease, which appeared waiting with impatience to inflict its agonies.

From this moment the distressing difficulty of breathing had very slight remissions. The consequent disposition to incline the superior part of the body forward, for the purpose of facilitating respiration, increased so much, that he frequently slept with his head reposed on his knees. The cough became occasionally very violent, and was always attended with an expectoration of a brown coloured mucus, sometimes tinged with blood. The abdominal viscera lost their activity. The face was sometimes turgid and high coloured, at other times pallid and contracted. A gradual abolition of the powers of the mind ensued, with a low delirium, and two short fits of phrenzy. The state of the circulation was very variable; the pulse at the wrists principally hard and vibrating, rarely soft and compressible; the less pulsations becoming more indistinct, and at length scarcely perceptible. No perfectly distinct beat of the heart was felt, but a quick undulating motion, not corresponding with the pulse at the

wrist. Three days before death the arteries assumed this undulatory motion, corresponded with the motion of the heart, and, for forty-eight hours, lost the irregularity of pulsation*.

Once or twice the expiring faculties brightened. On the 30th of November he awoke, as if from death, conversed very pleasantly for two or three hours, and humorously described scenes, which he had witnessed in his youth.

On the 4th of December came on the second attack of furious delirium. Insensibility, and great prostration of strength, ensued. The respiration became very slow, and obstructed by the accumulation of mucus in the lungs; the pulse very intermittent, then regular, and finally fluctuating. A hiccough commenced; coldness of the extremities and lividity of the face followed, and continued three days before death. On the 9th the incurvated posture was relinquished, and the head sunk back upon the pillow; the respirations then diminished in frequency, till they became only two in a minute; and

* The celebrated Morgagni has recorded some cases of organic disease of the heart discovered by dissection, the symptoms of which do not exactly accord with those observed in this and the succeeding cases. It should be remembered, however, that many of the subjects of those cases were not examined by him, while living, and others but a very short time before death. But it appears, that, in the last stage of this disorder, some of the most important symptoms may be materially changed, especially the state of the pulse, dyspnœa and palpitations. Thus in the case related above, and in some others, the pulse became regular, the palpitations subsided, and the dyspnœa was less observable. The cases of that accurate anatomist, therefore, are not so contradictory of those related here, as might at first be imagined.

at the end of twenty-four hours they very gradually ceased.*

DISSECTION, NINE HOURS AFTER DEATH.

EXTERNAL APPEARANCE.

The whole body was much emaciated; the face pale and contracted. The hands were slightly œdematous. Discolourations, answering to the ribs, were observed on the thorax; many small purple spots, hard and prominent, on the back; excoriations on the nates; and purple spots, resembling incipient mortification, on the heel and toe.

THORAX.

The integuments of the thorax were free from fat: the cartilages of the ribs ossified in various degrees, some perfectly, others slightly. Upon laying open the cavity of the thorax, it was found to contain about three pints of water, the proportion being greatest on the left side.

The lungs were contracted into a smaller compass than usual, and were very firm to the touch. Their colour anteriorly was whitish, with small distinct purple spots; posteriorly, of a deep red, with similar spots. The right lobe adhered closely to the pericardium; it also adhered to the pleura costalis, by a great number of strong cords, which seemed to be elongations of the original adhesions. Some of them were nearly as hard as ligament, and many an inch in length. Internally the lungs presented a very

* Governour Sullivan was born December 4th, 1744, and died December 10th, 1809.

compact structure. Their cells were crowded with mucus, and their vessels filled with black blood, partly fluid, and partly coagulated. Some portions were firmer and more condensed than others, but no tubercles were discovered.

The pericardium, viewed externally, appeared very large, and occupied almost the whole space behind the opening formed by removing the sternum and cartilages of the ribs. It was situated principally on the left side, and contained about double the usual quantity of water; but was principally filled by the enlarged heart, to which it adhered anteriorly about two inches, near its base. Its parietes were, in every part, very much thickened and hardened.

The heart presented nearly its usual colour and form, excepting on its anterior surface, which was somewhat discoloured by coagulated lymph. It was enlarged in bulk to, at least, one half more than the healthy size. The auricles and ventricles contained coagulated blood. The tricuspid valves were in a sound state. The left auricle was double the usual size. The left ventricle was enlarged, about three times thicker and much firmer than usual. The mitral valves were very much thickened, and near the insertion of their columnæ, which were sound, cartilaginous, so that they were quite rigid, and the opening made by them, from the auricle to the ventricle, was scarcely large enough to admit the passage of a finger. The semilunar valves of the aorta were ossified at their bases and apices, and the por-

tion intermediate, between the base and apex, partly ossified, and partly cartilaginous, so as to render the valves very rigid. The aorta was at least one half larger than usual, especially at its arch. The arteria innominata, the carotid, and subclavian arteries, were uncommonly large and thick. The coronary arteries were considerably ossified.

ABDOMEN.

The omentum was destitute of fat. The stomach distended with flatus on the pyloric side; its cardiac extremity, lying under the liver, was pressed down and contracted. The liver was shrunk; its tunic corrugated, as if it had been distended, and bearing marks of inflammation; its substance harder than usual; its vessels, when divided, pouring out liquid black blood. The gall bladder was filled with bile. The kidneys were thicker, and more irregular in form, than is common. The abdominal cavity contained some water.

HEAD.

The bones of the cranium were unusually thick. The dura mater, which was thickened, and in many places bore marks of former inflammation, adhered to the bone at the vertex. On its internal surface, near the longitudinal sinus, there was a small ossified portion, half an inch long and the eighth of an inch thick. The convolutions of the brain were narrow, and very strongly marked. The pia mater bore marks of pretty extensive inflammation, and adhered to the dura mater at the vertex. The cor-

tical substance ran deep into the medullary part of the brain. The ventricles contained about double the usual quantity of water; their parts were all remarkably well defined. The vessels of the pia mater, over the corpora striata, were unusually injected with blood. The velum interpositum was very firm; the plexus choroides uncommonly thick, but pale; the opening from the right to the left ventricle large. The vessels of the brain were generally not much filled with blood.

THE BLOOD appeared every where fluid, except in some portions of the lungs, and in the cavities of the heart. It was very dark coloured, perhaps more than ordinarily thin, and oozed from every part, which was cut.

THE CELLULAR MEMBRANE, in all dependent parts, effused, when cut, a serous fluid.

CASE II.

MR. JOHN JACKSON, fifty-two years of age, had been affected for more than two years with palpitations of the heart, and paroxysms of dyspnœa. These symptoms increased in October, 1808, and were followed by strong cough, uneasiness in lying down, sudden startings in sleep, and an inclination to bend the body forward and to the left side. His cough, during the last part of his life, was attended with copious bloody expectoration. His countenance was florid; his pulse very irregular, though not quite intermittent. The occasional variations in the

state of the disease were remarkable. Some periods were marked with uncommon mental irritability. Pain in the region of the liver, œdema of the inferior extremities, paucity and turbidness of the urine, yellowness of the skin, and great emaciation attended the latter stages of the disease. A degree of stupor occurred. The termination on the 30th of January, 1809, was tolerably quiet. Two days before death he sank into the recumbent posture, and his pulse became more regular*.

DISSECTION,

TWENTY-FOUR HOURS AFTER DEATH.

On opening the thorax, its right cavity was found to contain a large quantity of water; the left, a smaller quantity.

The lungs were of a firm, condensed texture, especially at the lower part, where their solidity was nearly equal to that of a healthy liver. They contained black blood.

The heart was much enlarged, and proportionally thickened. Its tunic was in some places covered with coagulated lymph, especially over the coronary arteries. Its cavities were filled with black coagulum, which in the right auricle and ventricle had a slight appearance of polypus. The semilunar valves of the pulmonary artery and aorta were unusually small, and their bases cartilaginous. Those of the aorta had lost their form, and were slightly ossified.

* The symptoms of this patient were related by Dr. Rand, sen. to whose politeness and love of medical improvement I am indebte for the opportunity of examining this and the following case.

PLATE I.

APPEARANCE of the valves of the aorta in Case 3d, Article 10.

a a The two valves thickened.

b b Bony projections, one of which extends across the cavity of the valve.

c The orifices of the coronary arteries.

d d Fleshlike thickening of the aorta.

PLATE II.

Is a representation of the fleshlike thickening of the aorta in case 7th. The valves are smaller than usual, and their form is in some degree changed. A round spot, thickened, is seen at a little distance from the seat of the principal disease.

D
D
C
B
B
A
A

The remaining valves were partially thickened. The arch of the aorta was very much dilated, its internal coat covered with a bony crust, which extended through the remaining thoracic portion, gradually diminishing. This portion was also considerably dilated.

The liver was indurated; its peritonæal coat exhibited a flaccid or wrinkled appearance, and bore marks of slight inflammation. The gall bladder was filled with bile, and the pancreas indurated.

CASE III.

Captain Job Jackson, forty-five years of age, a man of vigorous constitution, after an indisposition of some years continuance, was seized with palpitations of the heart and dyspnœa, occurring by variable paroxysms, especially on ascending an eminence, and attended by hardness, irregularity, and intermission of the pulse. To these symptoms were superadded dizziness and severe head-ache, a disposition to bend the body forward, sudden starting from sleep, with dread of suffocation, violent cough with copious expectoration, which for fifteen days before death consisted of black blood, distressing pain across the chest, especially on the left side, great œdema of the lower extremities, and paucity of urine.

He died painfully in January, 1809, after violent struggles for breath. The day before death the pulse became regular. He rested his head upon an

attendant, and made no attempts to lie down for some days previous*.

DISSECTION,

SIXTEEN HOURS AFTER DEATH.

The skin was of a yellow colour. The inferior extremities, quite to the groins, were œdematous.

The left cavity of the thorax was filled with water; the right contained only a small quantity. The pleura costalis, on the left side opposite to the heart, was thickened and covered with a very thick flocculent coat of coagulated lymph, and the pericardium opposite to it had the same marks of inflammation. The lungs on that side were pushed up into a narrow space. They were dense and dark coloured.

The pericardium contained little more than the usual quantity of water. The heart, which exhibited marks of some inflammation on its surface, was astonishingly large, and firm in proportion. Its cavities were principally filled with coagulum. The semilunar valves of the pulmonary artery had their bases slightly ossified, and the remaining part thickened. There were only two valves of the aorta, and these were disorganized by the deposition of ossific matter about their bases, and a fleshlike thickening of the other part†. The parietes of the heart, especially of the left ventricle, were greatly thickened, and somewhat ossified near the origin of the aorta.

The liver had the same appearance as in case second.

* The symptoms of this case were related to me by Dr. Rand, sen.

† See plate first.

CASE IV.

Thomas Appleton, thirty-eight years of age, of a robust constitution, was affected with excessive difficulty of breathing, occurring at intervals of different duration. It commenced three years before his death, and gradually increased. He was subject to palpitations of the heart for at least two years before his death, and was distressed with violent cough, attended with copious expectoration, which finally became very bloody. The palpitation and dyspnœa were greatly augmented by ascending stairs. His countenance was very florid.

Sometimes he was seized with violent head-ache and dizziness, which, as well as the other symptoms, were greatly relieved by venesection. About two months before death œdema of the legs appeared, which was soon followed by frequent and alarming syncope. His pulse was irregular, intermittent, hard, and vibrating. When lying down he frequently awoke, and started up in great terror. His usual posture was that of sitting, with his trunk and head bent forward, and inclining to the left side. For some time before death a recumbent posture threatened immediate suffocation; yet, three days previous to the occurrence of that event, he sank back upon the pillow. He was, at intervals, so much better as to think himself free from disease. Slight delirium preceded his death, which occurred in January, 1809*.

* The symptoms in this case were related to me by Dr. Warren, sen.

DISSECTION,

EIGHTEEN HOURS AFTER DEATH.

The countenance continued florid. The inferior extremities were much distended with water, and the cellular membrane abounded in fat.

The right cavity of the pleura contained a moderate quantity of water; the left, scarcely any. The lungs were firm, condensed, and dark coloured, from venous blood. The pleura, on the left side opposite to the pericardium, appeared to have been inflamed, as there was an effusion of coagulated lymph on its surface.

The pericardium was much distended with water. The heart, on the anterior surface of which were some appearances of inflammation, was very much enlarged. Its parietes were thickened; its cavities unnaturally large, and filled with black coagulum. Each of the valves had lost, in some degree, its usual smoothness, and those of the aorta were, in some points, thickened, and partly cartilaginous.

The liver was small, and, when cut, poured out dark blood. Its tunic was whitish, opaque, and corrugated.

CASE V.

A. B. a negro, about thirty-five years of age, had paroxysms of dyspnœa and violent cough, attended with œdema of the extremities and ascites, violent head-ache, dizziness, brightness of the eyes, palpi-

tations of the heart, irregular, intermittent, slow, and soft pulse. These symptoms slowly increased, during three or four years, in which time the dropsical collections were repeatedly dispersed. He gradually and quietly died in the alms-house, in January, 1809.

DISSECTION.

On dissection, the cavities of the pleura were found to contain a considerable quantity of water. The pericardium was filled with water; the heart considerably enlarged; its parietes very thin, and its cavities, especially the right auricle and ventricle, morbidly large*.

CASE VI.

Mrs. M'Clench, a washer-woman, forty-eight years of age, of good constitution and regular habits, was attacked, in the summer of 1808, with palpitations of the heart and dyspnœa on going up stairs, severe head-ache, and discharges of blood from the anus. These symptoms did not excite much attention. In the winter of 1808-9, all of them increased, except the palpitations. The inferior extremities and abdomen became distended with water; the region of the liver painful; the skin quite yellow; the pulse was hard, regular, and vibrating; the countenance very florid. Violent cough followed, and blood was profusely discharged from the lungs.

* This dissection was performed by Dr. Gorham.

This discharge being suppressed, evacuations of blood from the anus ensued, under which she died, in March, 1809.

DISSECTION.

The right cavity of the thorax was filled with water; the left contained none. The lungs were sound, but very dense, full of dark coloured blood, and, on the right side, pressed into the upper part of the thorax. The heart was one half larger than natural; its substance firm, and its anterior part, especially near the apex, covered with coagulated lymph. The right auricle and ventricle were large, and their parietes thin. The parietes of the left auricle and ventricle, particularly of the latter, were much thickened, and their cavities were filled with black coagulum.

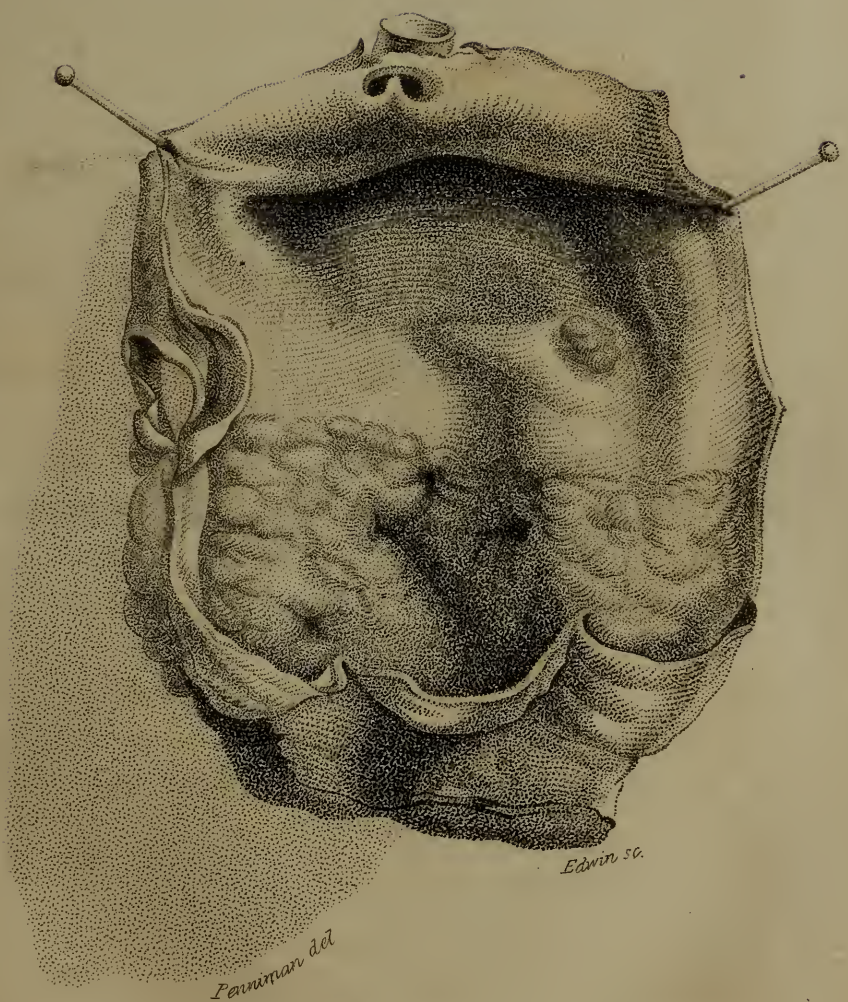
The liver was contracted; its coat wrinkled, and marked with appearances of recent inflammation.

CASE VII.

To JOHN C. WARREN, M. D.

MY DEAR SIR,

Your important communication to our society, which is about to be published, will lay before the American public much more knowledge respecting the diseases of the heart, and large vessels, than has hitherto been presented to them. A case has lately fallen under my observation, having so much similarity to those of organic diseases of the heart, which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have occurred to you, as to mark its affinity, yet with some differences, which characterize it as a variety. If the statement of it will add any value to your collection of cases, you are at liberty to publish it.

A. S. twenty-eight years of age, and of middle stature, was attacked, after a debauch, with pain in the region of the heart, which subsided, but returned a year after on a similar occasion. He then became affected with palpitations of the heart for six months, great difficulty of breathing, which was augmented by ascending an eminence, severe cough, dizziness, and violent head-ache, attended by a disposition to bend the body forward, and sudden startings from sleep. His pulse was always regular, and never remarkably hard. His countenance, till within a few weeks of death, presented the appearance of blooming health. His feet and legs did not swell at any period of the disease. He suffered exceedingly from flatulence, to which he was disposed to attribute all his complaints. This symptom might have been aggravated by his habits of free living, and occasional intoxication, which he acknowledged, and to which he traced the origin of his disease.

After death, water was discovered in the thorax; but the lungs had not that appearance of accumulation of blood, in particular spots, which is commonly observed in cases of organic disease of the heart. The only very remarkable morbid appearance about the heart was in the aorta, and its valves. The valves had lost their transparency, and were considerably

thickened in various spots. The inner surface of the aorta, for about an inch from its commencement, was elevated and thickened, and the external surface singularly roughened and verrucated. This appearance was so peculiar, that no words will give a competent idea of it, and perhaps it would be sufficient for me to call it a chronic inflammation*.

I am, my dear sir,

Your friend and obedient servant,

JAMES JACKSON.

CASE VIII.

Col. William Scollay, aged fifty-two, of a plethoric habit of body, was attacked, in the year 1805, with dyspnœa and palpitation of the heart, attended with irregularity of the pulse, and œdema of the lower extremities. By the aid of medicine, the dropsical collections were absorbed, and he recovered his health, so far as to follow his usual occupations, nearly a year; but was then compelled to relinquish them. The symptoms afterwards underwent various aggravations and remissions, till the beginning of the winter of 1808-9, when the attacks became so violent, as to confine him to the house. His face was then high coloured. The faculties of his mind were much impaired. The dyspnœa became more constant, and was occasionally attended by cough; the palpitations rather lessened in violence; the pulse was more irregular, and exceedingly intermittent. The abdomen and inferior extre-

* See plate second.

mities were sometimes enormously distended with water, and afterwards subsided nearly to their usual size. One of the earliest, most frequent, and distressing symptoms, was an intense pain in the head. About two months before death, a hemiplegia took place, but after a few days disappeared. This so much impaired the operations of the mind, that the patient afterwards found great difficulty in recollecting words sufficient to form an intelligible sentence. During the existence of the last symptom the pulse was regular.

He gradually expired, on the 15th of March, 1809.

DISSECTION, FIVE HOURS AFTER DEATH.

EXTERNAL APPEARANCE.

The countenance was somewhat livid and pale; the lips were very livid. The chest resounded, when struck, except over the heart. The abdomen was tumid, and marked by cicatrices like those of women, who have borne children. The superior extremities were emaciated, and marked like the abdomen. The lower extremities were œdematous.

THORAX.

The cartilages of the ribs were ossified. The left cavity of the pleura contained about twelve ounces of water; the right, about three ounces. The lungs, externally, were dark coloured, especially the posterior lobes; internally, they were very firm, and, in some places, as dense as the substance of the liver. A frothy mucus was effused from them in great

quantities. They were coloured by very dark blood, especially in the middle portion of the left superior lobe. One or two calcareous concretions were observed in them. The pericardium was a little firmer than usual, and contained about five ounces of water. The heart was enlarged, and covered with tough fat. In the right auricle, and ventricle, was some coagulated blood. The tricuspid valves had lost their smoothness and transparency; the semilunar valves of the pulmonary artery were cartilaginous at their bases. The left auricle and ventricle, particularly the first, contained coagulum. The mitral valves were roughened by many bony spots. Considerable ossification had taken place in the semilunar valves of the aorta, so that one of them had quite lost its form; and the aorta was ossified for the space of a square inch, at a small distance from the valves. The coronary arteries were also ossified.

ABDOMEN.

The coat of the liver was somewhat wrinkled, as if shrunk. Its substance was hard, and discharged, when cut, great quantities of blood. The veins of the omentum, mesentery, and intestines, were full of blood. The abdomen contained a considerable quantity of water.

HEAD.

Water was found between the dura and pia mater, and between the pia mater and arachnoides. The vertical portion of the pia mater bore marks of

former inflammation. The convolutions of the brain were very distinct; their external surface was pale. The veins were empty *. No bloody points were observed in the medullary portion of the brain, when cut. The ventricles contained between one and two ounces of water; the communication between them was very large. The plexus choroides was pale.

CASE IX.

A LADY, about forty-five years of age, the mother of many children, has been troubled during the course of the past year with violent palpitations of the heart, and great difficulty of respiration, especially on going up stairs. These complaints have lately increased, so that she has kept in her chamber about two months. Her countenance is florid; her eyes are clear and bright. She has dizziness, especially on moving, without pain in her head. She had for some time, a severe cough, which is now relieved. The dyspnœa is not yet very distressing, except on using motion; it often occurs in the night, and obliges her to rise and sit up in bed. The palpitations are very hard, and so strong, that they may be perceived through her clothes; the tumult in the thorax is indescribable. The functions of the abdominal viscera are unimpaired. The pulse is hard, vibrating, irregular, intermittent, very variable, cor-

* In this case, and in case first, the vena cava ascendens had been divided, before the brain was examined.

responding with the motions of the heart, and similar in each arm. There is not yet the slightest reason to suspect any dropsical collection. The alternations of ease and distress are very remarkable, but on the whole, the violence of the symptoms increases rapidly.

THERE is no difficulty in discovering in this case an organic disease of the heart, which probably consists in an enlargement and thickening of the heart, and an ossification of the semilunar valves of the aorta.

CASE X.

LEVI BROWN, a cabinet-maker, forty-eight years of age, complained in February, 1809, of great difficulty of breathing, and an indescribable sensation in the chest, which he said was sometimes very distressing, and at other times quitted him entirely. Being a man of an active mind, he had read some medical books, whence he got an idea, that he was hypochondriac.

ON examining his pulse, it was found to be occasionally intermittent, contracted, and vibrating. He had some years previously been attacked with copious hæmorrhages from the stomach or lungs, which have occasionally recurred, though they have lately been less frequent. Eight years since he suffered from an inflammation of the lungs; and about two or three years ago he first experienced a beating in the chest, and pain in the region of the heart, which

increased till within six or eight months, since which the beating has been stationary, and the pain has much increased. In the course of the last summer, dyspnœa, on using exercise, and especially ascending any eminence, commenced. This has greatly increased, so as to render it almost impossible for him to go up stairs. His countenance is turgid, and uniformly suffused with blood; his eyes are bright and animated; his lips livid. The pulsation of the heart cannot be felt on the left side, and is barely perceptible on the right side of the sternum, and in the epigastric region. When he is distressed with fits of dyspnœa, he feels something as if rising to the upper part of the thorax, and the heart then seems to him to be beating through the ribs. I have not witnessed any of these paroxysms. The inferior extremities and abdomen have been swelled about three weeks. When in bed, he has his head and shoulders elevated, and, upon the attack of his paroxysms, sits up and inclines his head forward; but he keeps from the bed as much as possible. In his sleep he is apt to start up, suddenly, in distress, especially when he first slumbers. His dreams are often frightful, and, when awake, he is affected with reveries, during which, though conscious of being awake, strange illusions present themselves. At intervals he seems slightly delirious. He has a violent cough, with very copious expectoration of thick mucus. He often suffers from severe head-ache, and the least exercise produces dizziness.

This man has a very robust frame of body, and has been accustomed to a free use of ardent spirits, and of opium, of which he now takes about twelve grains in a day. His appearance is such, that, on a slight survey, one would not suppose him diseased, but, on observing him with a little attention, a shortness and labour of respiration are perceived, with some interruption in speaking, and a frequent catching of the breath, or sighing.

April. Since writing the above account, the dropsical collections were absorbed, and the palpitations and other symptoms moderated, so that he considered himself nearly well, and attended to his usual business. Within a few days, however, the symptoms have returned with more violence. The dyspnœa is at times very distressing; the pulse more irregular and intermittent; the palpitations are more constant. His sufferings from lying in bed are so increased, that in the most comfortable nights he passes, he sits up once in an hour or two. The appetite is keen. The legs begin to swell again.

Some organic disease of the heart exists in this case. The indistinctness of the palpitations, the want of hardness in the pulse, and the slow progress of the disease, indicate a loss of power in the heart, the effect of the distention and thinness of its parietes. The irregularity of the pulse affords some reason to suspect disorder of the aortal valves, which is not yet very considerable.

ENUMERATION *of the principal morbid changes, observed in the organization of the heart, in the preceding cases.*

Enlargement of the volume of the heart, or aneurism.*
Increase of the capacity, or aneurism of the right auricle,
..... of the right ventricle,
..... of the left auricle,
..... of the left ventricle,
} with thickened, or thin, parietes.
..... of the aorta, with thickening of its coats.

Fleshlike† thickening of the mitral valves.
..... of the aortal valves.
..... of the aorta.

Cartilaginous thickening of the internal membrane of the heart, and generally of its valves.
Ossification of the parietes of the heart.
..... mitral valves.
..... aortal valves.
..... aorta.
..... coronary arteries.

ENUMERATION *of the principal morbid appearances, observed in these cases of disease of the heart, which may be considered secondary.*

IN THE CAVITY OF THE CRANIUM.

Inflammation of the meninges.
Water between the meninges.
Water in the ventricles.

IN THE PLEURA AND ITS CAVITY.

Inflammation and thickening of the pleura.
Collection of water in its cavity.
Lungs dark coloured.
..... generally very firm, and particularly in some parts.
..... loaded with black blood.
..... crowded into a narrow space.

IN THE PERICARDIUM AND ITS CAVITY.

Inflammation and thickening of its substance.
Adhesion to the heart and lungs.
Collection of water in its cavity.

IN THE CAVITY OF THE ABDOMEN.

Collection of water.
Liver very full of fluid blood.
..... having its tunic flaccid and inflamed.
Mesenteric veins full of blood.

CELLULAR MEMBRANE full of water.
THE BLOOD every where fluid, except in the cavities of the heart.

* Morgagni uses this term, which he borrows from Ambrose Pare, to express dilatation of the cavities of the heart. It seems to be as applicable to the dilatation of the heart, as to that of an artery. I have therefore adopted it in this enumeration.

† The term fleshlike is employed to express that roughness of the valves, which somewhat resembles flesh in its appearance, but which is very different from the thickening of the parietes of the heart.

REMARKS.

The symptoms, which are most observable, in some or all of the preceding cases, are the following:

The first notice of disorder is commonly from an irregular and tumultuous movement of the heart, which occurs some time before any perceptible derangement of the other functions. This irregularity slowly increases, and arrives at its height before the strength of the patient is much impaired, at least in the cases which I have noticed; and as the vigour of the patient lessens, the force of the palpitations diminishes. These palpitations are often so strong, as to be perceptible to the eye at a considerable distance. They are seldom most distinct in the place where the pulsation of the heart is usually felt. Sometimes they are perceived a little below; often in the epigastric region; and not unfrequently beneath, and on the right side, of the sternum.

After the palpitations have lasted some time, a little difficulty of breathing, accompanied with sighing, is perceived, especially on any great exertion, ascending an eminence, or taking cold, of which there is an uncommon susceptibility. This dyspnœa becomes, as it increases, a most distressing symptom. It is induced by the slightest cause; as by an irregularity in diet, emotions of the mind, and especially movement of the body; so that on ascending stairs quickly, the patient is threatened with immediate suffocation. It occurs at no stated periods, but is never long absent, nor abates much

in violence during the course of the disease. It is attended with a sensation of universal distress, which perhaps may arise from the circulation of unoxygenated blood, or the accumulation of carbon in the system; for the countenance becomes livid, and the skin, especially that of the extremities, receives a permanent dark colour. This dyspnœa soon causes distress in lying in an horizontal posture. The patient raises his head in bed, gradually adding one pillow after another, till he can rarely, in some cases never, lie down without danger of suffocation; he inclines his head and breast forward, and supports himself upon an attendant, or a bench placed before him. A few hours before death the muscular power is no longer capable of maintaining him in that posture, and he sinks backward. The dyspnœa is attended with cough, sometimes through the whole of the disease, sometimes only at intervals. The cough varies in frequency. It is always strong, and commonly attended with copious expectoration of thick mucus, which, as the disease advances, becomes brown coloured, and often tinged with blood; a short time before death it frequently consists entirely of black blood.

The changes in the phœnomena of the circulation are very remarkable. The sanguiferous system is increased in capacity; the veins, especially, are swelled with blood; the countenance is high coloured, except in fits of dyspnœa, when it becomes livid; and it is very frequently puffed, or turgid. The brightness of the eyes, dizziness, which is a

common, and head-ache, which is a frequent symptom, and in some cases very distressing, are probably connected with these changes. The motions of the heart, as has already been stated, are inordinate, irregular, and tumultuous. The pulse presents many peculiarities. In some cases, probably where there is no obstruction in the orifices of the heart, it remains tolerably regular, and is either hard, full, quick, vibrating and variable, or soft, slow, compressible and variable. Most commonly, perhaps always, when the orifices of the heart are obstructed, it is vibrating, very irregular, very intermittent, sometimes contracted and almost imperceptible, very variable, often disagreeing with the pulsations of the heart, and sometimes differing in one of the wrists from the other.

The functions of the brain suffer much disturbance. Melancholy, and a disposition for reverie, attend the early stages of the complaint; and there is sometimes an uncommon irritability of mind. The dreams become frightful, and are interrupted by sudden starting up in terror. Strange illusions present themselves. The mental faculties are impaired. The termination of the disease is attended with slight delirium; sometimes with phrenzy, and with hemiplegia.

The abdominal viscera are locally, as well as generally, affected. Although the digestive functions are occasionally deranged, the appetite is at some periods remarkably keen. The action of the intestines is sometimes regular, but a state of cos-

tiveness is common. The liver is often enlarged, probably from accumulation of blood. This distention is attended with pain, varies much, and, in all the cases I have seen, has subsided before death, leaving the coats of the liver wrinkled, flaccid, and marked with appearances of inflammation, caused by the distention and pressure against the surrounding parts. An effect of the accumulation of blood in the liver, and consequently in the mesenteric veins, is the frequent discharge of blood from the hæmorrhoidal vessels. This occurs both in the early and late stages of the disease, and may become a formidable symptom. Evacuations of blood from the nose are not uncommon.

Dropsical swellings in various parts of the body succeed the symptoms already enumerated. They commence in the cellular membrane of the feet, and gradually extend up the legs and thighs; thence to the abdominal cavity, to the thorax, sometimes to the pericardium, to the face and superior extremities; and, lastly, to the ventricles and meninges of the brain. These collections of water may be reabsorbed by the aid of medicine; but they always return and attend, in some degree, the patient's death.

There is no circumstance more remarkable in the course of this complaint, than the alternations of ease and distress. At one time the patient suffers the severest agonies, assumes the most ghastly appearance, and is apparently on the verge of death; in a day or a week after, his pain leaves him, his

appetite and cheerfulness return, a degree of vigour is restored, and his friends forget that he has been ill. The paroxysms occasionally recur, and become more frequent, as the disease progresses. Afterwards the intermissions are shorter, and a close succession of paroxysms begins. If the progress of the complaint has been slow, and regular, the patient sinks into a state of torpor, and dies without suffering great distress. If, on the contrary, its progress has been rapid, the dyspnœa becomes excessive; the pain and stricture about the præcordia are insupportable; a furious delirium sometimes succeeds; and the patient expires in terrible agony.

Such are the symptoms, which a limited experience has enabled me to witness. Others, equally characteristic of the disease, may probably exist.

From this description of the symptoms it would appear, that there could be no great difficulty in distinguishing this from other diseases; yet probably it has sometimes been confounded with asthma, and very frequently with hydrothorax. Some may think, that there is no essential difference in the symptoms of these diseases. The resemblance between them, however, is merely nominal.

The cough in hydrothorax, unlike that which attends organic diseases of the heart, is short and dry; the dyspnœa constant, and not subject to violent aggravations. An uneasiness in a horizontal posture attends it, but no disposition to incurvate the body forward. These are some of the points, in which these two diseases slightly resemble each

other. Those, in which they totally differ, are still more numerous; but as most of them have been already mentioned, it is unnecessary to indicate them here.

It is probable, that the two diseases commonly arise in patients of opposite physical constitutions; the hydrothorax in subjects of a weak relaxed fibre; the organic diseases of the heart in a rigid and robust habit. The subjects of the latter affection, in the cases which have fallen under my observation, were, with the exception of one or two instances, persons of ample frame, and vigorous muscularity, and who had previously enjoyed good health. In nearly all these cases the collection of water was principally on one side, yet the patients could lie as easily on the side where there was least fluid, as on the other; which, in the opinion of most authors, is not the case in primary hydrothorax. It should also be observed, that, in many of the cases, there was only a small quantity of water in the chest, and that in neither of them was there probably sufficient to produce death. May not primary hydrothorax be much less frequent, than has commonly been imagined?

Idiopathic dropsy of the pericardium may, perhaps, produce some symptoms similar to those of organic disease of the heart; but it appears to be an uncommon disorder, and I have had no opportunity of observing it. In the fourth case, a remarkable disposition to syncope, on movement, distinguished the latter periods of the disease, and might

have arisen from the great collection of water in the pericardial sac.

The causes of this disease may, probably, be whatever violently increases the actions of the heart. Such causes are very numerous; and it is therefore not surprising, that organic diseases of the heart should be quite frequent. Violent and long continued exercise, great anxiety and agitation of mind*, excessive debauch, and the habitual use of highly stimulating liquors, are among them.

The treatment of this complaint is a proper object for investigation. Some of its species, it is to be feared, must forever remain beyond the reach of art; for it is difficult to conceive of any natural agent sufficiently powerful to produce absorption of the thickened parietes of the heart, and at the same time diminish its cavities; but we may indulge better hopes of the possibility of absorbing the osseous matter and fleshy substance deposited in the valves of the heart and coats of the aorta. A careful attention to the symptoms will enable us to distinguish the disease, in its early stages, in which we may undoubtedly combat it with frequent success.

Although it may not admit of cure, the painful symptoms attending it may be very much palliated; and, as they are so severely distressing, we ought to resort to every probable means of

* It has been remarked by the French physicians, and particularly by M. Corvisart, physician to the emperor of France, that these organic diseases were very prevalent after the revolution, and that the origin of many cases was distinctly traced to the distressing events of that period.

alleviating them. Remedies, which lessen the action of the heart, seem to be most commonly indicated. Blood-letting affords more speedy and compleat relief, than any other remedy. Its effect is quite temporary, but there can be no objection to repeating it. The digitalis purpurea seems to be a medicine well adapted to the alleviation of the symptoms, not only by diminishing the impetus of the heart, but by lessening the quantity of circulating fluids. Its use is important in removing the dropsical collections; and for this purpose it may often be conjoined with quicksilver. Expectoration is probably promoted by the scilla maritima, which, in a few cases, seemed also to alleviate the cough and dyspnœa. Blisters often diminish the severe pain in the region of the heart, and the uneasiness about the liver. It has been seen, that the excessive action of the heart sometimes produces inflammation of the pleura and pericardium, and that the distention of the coat of the liver has the same effect upon that membrane in a slighter degree. Vesication may probably lessen those inflammations. When the stomach and bowels are overloaded, a singular alleviation of the symptoms may be produced by cathartics, and even when that is not the case, the frequent use of moderate purgative medicines is advantageous. Full doses of opium are, at times, necessary through the course of the complaint. The antiphlogistic regimen should be carefully observed. The food should be simple, and taken in small quantities, stimulating liquors

cautiously avoided, and the repose of body and mind preserved, as much as possible.

The causes of some of the phœnomena of this disease are easily discovered; those of the others are involved in obscurity, and form a very curious subject for investigation. I shall not at present trouble you with the ideas relating to them, which have occurred to me, but hope to be able to present some additional remarks on the subject, at a future period. In the mean time, I beg leave to invite the attention of the society to the observation of the symptoms of this interesting disorder, and of the morbid appearances in the dead bodies of those, who have become its victims.

At the time the preceding pages were going to the press, the subjects of the ninth and tenth cases died, on the same day, and an opportunity was given of ascertaining whether their complaints had been rightly distinguished.

It is a proof of an enlightened age and country, that no objections were made in any instance to the examinations, which have afforded us so much useful information.

DISSECTION OF CASE NINTH.

THIRTY HOURS AFTER DEATH.

The lady, who was the subject of this case, died on the 10th of May, but she was not seen by me after the 29th of March; so that it is not in my

power to relate exactly the symptoms which attended the latter stages of her complaint. I was informed, however, that they increased in violence, especially the difficulty of breathing, and inability to lie down; that her cough returned, and her expectoration was sometimes bloody; and that, for sometime before death she suffered inexpressible distress.

We found the body somewhat emaciated, and the lower extremities and left arm œdematous. Might not this swelling of the left arm have depended on her constant posture of inclining to her left side?

The face, especially at the lips, was livid, though not so much as in many other cases of this disease. On the left shoulder were small, hard, and prominent livid spots.

The cellular membrane, both on the outside and inside of the thorax, was quite bloody, which is not usually the case in dead bodies. The cartilages of the ribs were slightly ossified, and, upon their removal, it appeared that the pericardium and its contents occupied an extraordinary space, for the lungs were quite concealed by them. These organs being drawn forward, appeared sound and free from adhesions; their colour, anteriorly, was rather dark; posteriorly, still darker; their consistence firm. Their vessels were so crowded with blood, as to cause an uniform dark colour in the substance of the lungs, especially in some particular spots, where the blood appeared to be accumulated; but whether

this accumulation was confined to the blood vessels, or extended to the bronchial vesicles, could not be satisfactorily determined. No one can doubt that blood may be frequently forced through the thin membrane of the air vesicles, who considers, that in these cases the heart often acts with uncommon violence, that, when it is enlarged, it attempts to send toward the lungs more blood than their vessels can contain, and that there is commonly some obstruction to the return of blood from the lungs into the heart, from derangement either in the mitral or aortal valves, or in the aorta. The consequent accumulation of blood in the lungs seems to me to be the probable cause of the dyspnœa, which so much distresses those affected with diseases of the heart; for if there be an inordinate quantity of blood, there must be a deficiency of air.

This accumulation of blood in the lungs has, by some writers, been considered as an appearance belonging to idiopathic hydrothorax. Whether it ever exists in that complaint seems to me uncertain. The pressure of water upon the lungs, may possibly interrupt the free circulation of blood through their vessels, yet probably the same pressure would prevent the entrance of blood into the vessels, unless there be some other cause to overcome it, such as increased action of the heart, which attends only the first stage of hydrothorax. It has beside been proved by the experiments of Bichat, that the collapsion of the lungs does not obstruct the circulation of blood through the pulmonary vessels. It seems

probable, therefore, that those who have thought this collection of blood an appearance belonging to idiopathic hydrothorax, have mistaken for it the secondary hydrothorax produced by diseases of the heart.

On pursuing the examination, we found, behind the lungs, about five or six ounces of yellowish serum in each cavity of the pleura, and about one ounce in the cavity of the pericardium. The heart was then seen enlarged to more than double its natural size. Its surface, especially along the course of the branches of the coronary arteries, was whitened by coagulated lymph. In the cavities of the heart, which were all enlarged and thickened, particularly the left, were found portions of coagulum mixed with fluid blood. Near its apex, over the left ventricle, was a small soft spot which, to the finger, seemed like the point of an abscess ready to burst. The tricuspid valves, and the valves of the pulmonary artery, had lost somewhat of their transparency, and were a little thickened, though not materially. It is worthy of remark, that these valves have not exhibited any great appearance of disease in any of these cases, while those of the left side of the heart have scarcely ever been found healthy. So it appeared in this case. The mitral valves were uniformly thickened, and partly cartilaginous; the left portion adhered to the side of the heart. The valves of the aorta had lost their usual form, were entirely cartilaginous, and almost equal in firmness to the aorta, which was cartilaginous under the valves, sound in

other parts, and rather small, compared to the size of the heart.

It may be thought that the symptoms, on which reliance was placed to distinguish disorder of the valves of the aorta, are fallacious, because it was supposed that these valves would be found ossified, when they were in reality only cartilaginous. The difference, however, would be small in the effects produced on the circulation by such a state of the valves as existed in this case, and a very considerable ossification; for, if the valves were rigid and unyielding, it is of little importance whether they were rendered so by bone, or cartilage. Whether the irregularity of the pulse in these diseases generally depends on the disorganized state of the aortal, or other valves, we have not at present observations sufficient to decide. In the sixth case no irregularity of the pulse could be observed, although the other symptoms were unequivocal, and no disease was found in the valves; while, on the other hand, we find that the valves in the fourth case were not importantly deranged, and yet there was an irregularity and intermission of the pulse, which however might be attributed to the dropsy of the pericardium. In the seventh case, where the pulse was not irregular, the valves of the aorta were "considerably thickened in various spots;" in the fifth, the pulse was irregular, and the valves were not materially altered, but there was water in the pericardium. In all the other cases, the pulse was irregular, and the valves were much disordered.

On a review of these cases, therefore, we find some reason to believe, that the irregularity of the pulse depends much on disease of the valves, especially those of the aorta.

THE cavity of the abdomen being opened, no water was discovered in it, nor any other uncommon appearance, except about the liver, the coat of which had been rendered opaque by coagulated lymph, and was studded over with soft, dark coloured tubercles. The substance of the liver was tender, and full of bile and venous blood.

DISSECTION OF CASE TENTH.

TWENTY-FOUR HOURS AFTER DEATH.

THE symptoms of disease in this patient did not alter much, except in degree, from the middle of April to the 10th of May. He became weaker, had more straitness and pain about the heart on moving, an increase of swelling in the legs and abdomen, return of the cough, and a pain from the left shoulder to the middle of the arm. After his relapse in April, he had been directed to employ blisters, the submuriate of quicksilver, and the tincture of the digitalis purpurea. The dose of the tincture he gradually increased, till he took two hundred drops, two or three times in a day. Notwithstanding a profuse flow of urine, the legs became so hard and painful, that I made punctures to discharge the water from them. He would have had the water in the abdomen drawn off, but believing it would not afford him great relief, I dissuaded him from it. On

the 10th of May, after having passed an unusually comfortable night, he rose and left his chamber for five or six hours, then retiring to it again, said he would be tapped that day, and, after lying down, was quitted by his attendant, who went in an hour after and found him dead. This was rather unexpected, for he had the appearance of sufficient vigour to struggle with disease three or four weeks longer.

A NUMBER of medical gentlemen being assembled, as has been usual on these occasions, we first remarked, that the face was swollen, and extraordinarily livid; for, although a considerable degree of lividity, and sometimes of redness, after death, is peculiar to these cases, we had seen none which resembled this. Hard and prominent purple spots were observed upon the shoulders, side, and back. The surface of the body was moderately covered with fat; the legs and abdomen were much swollen with water, the arms more slightly. The integuments of the thorax being cut through, the cellular membrane discharged a serous fluid from every part; these being turned aside, to lay bare the cartilages of the ribs, we found them completely ossified; and having divided them, with a saw, the cavity of the thorax was opened. The cellular membrane, inside the thorax, about the mediastinum, had not so bloody an appearance as we witnessed in the preceding cases, nor were the lungs, either externally or internally, so dark coloured as usual, though they were much darker, firmer, and more filled with

blood, than is common in subjects of other diseases. The lungs of the left side adhered closely to the pleura costalis, and those of the right were tied by loose and membranous adhesions; beside which there was no appearance of disease about them. The cavity of the pleura did not contain any water; that of the pericardium held about six ounces.

The anterior surface of the heart exhibited a considerable whiteness of its coat over the coronary arteries. This appearance differed from that of other cases, in being contained in the substance of the membrane, instead of lying on its surface; and, either from this circumstance, or from the length of time since it had existed, its aspect was so peculiar that it might be supposed to be the first stage of an ossification. A deposition of lymph on the heart has been observed in every one of these cases of organic disease, and it has existed principally over the branches of the coronary arteries, or else near the apex of the heart, which is to be attributed to the irritation of the membrane by the combined impulse of the heart and coronary arteries, and to the stroke of the apex upon the ribs. This is an appearance that, as it belongs to this complaint, might be useful in a case otherwise dubious, if any such should occur, to aid in deciding whether the action of the heart had been inordinate.

The heart was enlarged to double its usual size, as we judged with confidence, for pains had been taken to examine hearts in a healthy state, for the purpose of forming a comparison. Its firmness was

not proportioned to its bulk, but it was considerably flaccid. Near the apex, over the left ventricle, was a soft spot, similar to that found in the preceding case. The venæ cavæ were then divided, and a torrent of black blood issued from each of the orifices, in spite of our efforts to restrain it. All the cavities of the heart were filled, as we afterwards saw, with similar blood; in which circumstance this resembles the other cases; though in this case the blood was entirely fluid, and thinner than in cases of different disease: whereas, in every other instance, was partly or wholly coagulated. This therefore must be considered as another appearance peculiar to this complaint, because it is well known, that blood is not usually found in the left cavities of the hearts of those who die of other disorders. The cause of it is doubtless an obstruction, which opposes the free discharge of blood from the heart, whether that obstruction be in the aortal valves, in the aorta itself, or in the disproportion between the heart, or more precisely the left ventricle, and the parts it supplies with blood.

Why was the blood entirely fluid in this case? If we compare the appearance of the cellular membrane, and of the lungs, in both of which there was a deficiency of blood, with the aspect of the face, where there was an accumulation of blood, and consider at the same time the mode of termination of this case, we shall find reason to believe, that death was produced by a violent pressure of the brain from a congestion of blood in its vessels, in conse-

quence of the obstruction to the return of that fluid to the heart. An additional proof of this opinion is derived from the great quantity of blood, which poured from the vena cava superior, during the whole time of the examination, and afterward; so that it was found impossible to preserve the subject from the blood flowing between the ligatures, notwithstanding the thorax was entirely emptied, before it was closed. In cases of sudden death from apoplexy, related by Morgagni, the blood was frequently fluid, and this may be supposed to be the cause of that appearance in the present case. The extraordinary thinness or watery state of the blood is a distinct circumstance, which will be presently noticed.

An examination of the brain, to ascertain the truth of the supposition above mentioned, was relinquished with regret, but this was impracticable; for the want of time on these occasions frequently obliged us to content ourselves with investigating the state of the most important parts. This must serve as our apology for not oftener relating the appearance of all the principal organs; yet it should be observed, that such methods have been employed to ascertain with accuracy the most interesting morbid phœnomena, as would satisfy the most scrupulous anatomist.

The tricuspid valves and the semilunar valves of the pulmonary artery had lost their healthy transparency, but were not otherwise diseased. In all the above cases these valves had been found without

important derangement of their structure; a circumstance not less remarkable, than difficult to be satisfactorily explained. The basis of the mitral valves was marked by a bony projection, which nearly surrounded the orifice of the ventricle; the valves themselves were thickened, and one of them was smaller than the other. The semilunar valves of the aorta were lessened in size, and somewhat thickened. One of them was ossified sufficiently to annihilate its valvular function; the others were slightly. The aorta under the valves was semicartilaginous, ossified in one small spot, roughened by fleshlike prominences in others, entirely deprived of the smoothness of its internal coat, and in size proportioned to the heart.

The parietes of the heart were thicker than those of a healthy heart, but thin when compared with its whole volume; whence it follows, that the cavities were enlarged. That of the left ventricle was disproportionately larger than the others, but no difference of size could be ascertained between the auricles. When a cavity of the heart is situated in the course of the circulation immediately behind a contracted orifice, it seems probable that the contraction may have an important influence in originating the enlargement or aneurism of that cavity; but, where there is no contraction of an orifice, what is the obstruction which impedes the free discharge of blood from the heart, and causes the first yielding of its parietes? Perhaps a violent simultaneous action of many muscles, from great exertion, may, during

the systole of the heart, impede the passage of the blood through the arteries, drive it back upon the valves of the aorta, and resist the heart at the moment of its contraction. If the parietes of the heart yield, in one part, it is easy to conceive a consequent distension of the remainder to any degree; for, during the systole of the heart, the columnæ approximate, till their sides are in contact, to protect the parietes of the heart; but, if these be distended, the columnæ can no longer come in contact with each other, and the blood passing between them will be propelled against the parieties, and increase their distention. The left ventricle being thus dilated, the mitral valves will not be able to completely cover its orifice, and part of the blood will escape from the ventricle, when it contracts, into the auricle when dilated with the blood from the lungs; and this undue quantity of blood will gradually enlarge the auricle. A resistance will arise, from the same cause, to the passage of the blood from the lungs, thence to that from the right ventricle and auricle, and thus these cavities may become enlarged in their turns. When an ossification of the aorta, or of its valves, exists, there will be a resistance to the passage of the blood from the left ventricle, either by a loss of dilatability in the artery, or a contraction of the orifice by the ossified parts. In either case, the blood will reflow upon the heart, and dilate the left ventricle, as in *case the first*, and others; and, if the mitral valves be thickened and rigid, the left auricle will

be more dilated than in a case of simple aneurism of the left ventricle, as appeared also in the *first case*.

The coronary arteries, at their origin from the aorta, and a considerable distance beyond, were ossified. How far does the existence of this ossification in this and other cases related by different authors, without symptoms of angina pectoris, disprove the opinion that it is the cause of that disease?

The abdomen being opened, the organs generally appeared sound, except the liver, which had its tunic inflamed, its substance indurated and filled with blood. The vestiges of inflammation in the coat of the liver were traced in every instance already related, while at the same time the liver, in all, appeared shrunken. The diminution of size in the liver, after death, cannot at present be well explained; for it is very certain that such a diminution is not an attendant of this disorder, during most of its stages, but that on the contrary a state exists precisely opposed to it. The indications of distention of the liver, clearly perceived in some cases, have been pain, tenderness, and sense of distention, in the right hypochondrium, and, what is less equivocal than these, very considerable swelling and prominence of the liver. The inflammation of its tunic is an effect of this distention and of the consequent pressure against the adjacent parts.

The cause of this phœnomenon can easily be explained. If an obstruction exist in either side of the heart, or in the lungs, the blood to be poured

into the right auricle, from the vena cava inferior, must be obstructed, its flow into that vessel from the liver will be equally checked, the thin coats of the hepatic veins and of the branches of the vena porta will yield and distend the soft substance of the liver. Hence are caused the discharges of blood from the hæmorrhoidal veins, which form one of the characteristic symptoms of the disease; for as these vessels empty their blood into the meseraic veins, which open into the vena porta, if the meseraic veins be obstructed, the hæmorrhoidals must consequently be also affected, and they easily burst open from too great distention. The hæmoptoe, which also is so frequent, is as easily explained on the same principle.

The cause of the serous collections is not so readily discovered. In this case, as in most of the others, we found a considerable quantity of water in the abdominal cavity. Dropsy is commonly considered as a disease of debility, but in these cases it often appeared, while the strength was unimpaired, and the heart acted with very extraordinary force. If the blood was driven with rapidity through the arteries, while an obstruction existed at the termination of the venous system in the heart, the consequences must have been accumulation in the venous system, difficult transmission of the blood from the extreme arteries to the veins, overcharge of the arterial capillary system, consequent excitement of the exhalant system to carry off the serous part of the blood, for which it is adapted, and thence a serous discharge

into the cavities, and also on the surface of the body; for great disposition to sweating is a common symptom. In addition to these, there is another cause of the universality of these effusions. The blood, in all the cases which I have examined, is both before and after death, more thin and watery than healthy blood. How this happens, our knowledge of the theory of sanguification does not enable us to determine. Perhaps, as the imperfect respiration must cause a deficiency of air, and consequently of oxygen, in the lungs; and as the absorption of oxygen is a cause of solidity in many bodies, this tenuity of the blood may proceed from a deficient absorption of oxygen. However this may be, it is certain that the blood is very much attenuated, though with considerable variations in degree, as it is sometimes found thin on opening a vein, and at a subsequent period is thicker; varying perhaps according to the continuance of ease or difficulty in respiration. It is certain, that this attenuation of the blood must tend to an increase of the serous exhalations.

That these secondary dropsies are not the effect of debility appears pretty evident from considering, that they often exist while the strength of the patient is yet undiminished, while all the other secretions, except that of the urine, are carried on with vigour, and while the appetite and digestive functions are not only unimpaired, but improved.

The examinations of the *ninth* and *tenth cases* are particularly valuable, because they confirm what had been observed in other subjects; they exhibit

two well marked instances of aneurism of the heart, and present us a view of organic disease unattended by dropsy of the pleura. This must be sufficient to remove the suspicion, that the symptoms we have attributed to the former disease might arise from the existence of the latter. No one probably will be willing to impute a chronic disease, terminated by a sudden death, to five or six ounces of water in the pericardium; for such a quantity, though it might produce inconvenience, could not prove fatal, unless it were suddenly effused; and, if this were true, it of course could not have been the cause of the long train of symptoms observed in *case tenth.*

Dr. William Hamilton, the author of a valuable treatise on the digitalis purpurea, thinks the hydrothorax a more frequent disease than has commonly been imagined, because he conceives that it has often been mistaken for organic disease of the heart. He names, with some precision, many symptoms of the latter complaint; but how remote he is from an accurate knowledge of it may be discovered by his opinion, that, in diseases of the heart, "the patient can lie down with ease, and seldom experiences much difficulty of breathing." The limits of this paper do not admit a discussion of this and other points, respecting which he seems to be mistaken. We must therefore submit them to be decided by the evidence adduced in Dr. Hamilton's "observations," and by that which may be drawn from these cases, and future investigations of the subject. It will perhaps hereafter appear surprising,

that derangements in the structure of so important an organ as the heart should have been lightly estimated by very respectable authors.

WHILE concluding these observations, a case of this disease presented itself, which comprehends so many of the symptoms, that I cannot neglect an opportunity of recording it, especially as it exhibits the complaint in an earlier stage than the others, with appearances equally unequivocal. I may here be allowed to remark, that no cases have been introduced which occurred before my attention was directed to a close observation of this disorder, and that there are many others, under the care of practitioners of eminence belonging to this society, with symptoms perfectly well marked, which it has not been thought necessary to adduce. In proof of this, reference may be had to Dr. Warren, sen. who has a number of cases, and also to Dr. Dexter, Dr. Jackson, and Dr. J. C. Howard.

A LADY from the country, of a robust habit, whose age is about thirty-four years, complains of uneasiness in the right side below the edge of the ribs, sometimes attended with swelling, external soreness, and a throbbing pain, which often reaches to the shoulder, and produces a numbness of the right arm. She is rather uncertain at what time her complaints commenced. About two years since she lost her husband, and was left with but small means to support a number of children. She became

in consequence, much dejected. While nursing a child, about a year since, she first was sensible of palpitations of the heart, which, in about three months, were followed by dyspnœa very much augmented by ascending an eminence; and profuse discharges of blood from the mouth, first raised, she believes, by vomiting, and afterwards by coughing. Evacuations of blood from the hæmorrhoidal vessels appeared about the same time, and occasionally since, till within six weeks, during which time there have been no sanguineous discharges, and this suppression has aggravated her other complaints.

The pulsation of the heart is felt most distinctly quite on the left side of the thorax, where there is a painful spot; it is perceptible also in the epigastric region. It is irregular and variable, at one moment hard, strong, distinct, and vibrating; at another, feeble and confused. There is also sometimes perceived a pulsation above the left clavicle, within the insertion of the mastoid muscle, commonly attended with a visible fulness of the superior part of the breast. The thorax feels, to the patient, as if it were girt across, and there is a distinct pain in the heart. Both these sensations are aggravated by a very hard, frequent, and dry cough, which however begins to be less violent from the use of the scilla maritima. The countenance is animated, and rather flushed, but not so much overcharged with blood as happens in many instances; perhaps it little exceeds a blush, so moderate that it might be considered as an indication of perfect health; yet the head is greatly disturbed

with dizziness, and frequent and intense pain, and is seen to be shaken by the palpitations.

The functions of the abdominal viscera are not much deranged. The appetite varies, though it is commonly good; the intestinal evacuations, and the menstrual discharges, are regular; the urine is turbid, and so small in quantity as sometimes to produce strangury. The abdomen and inferior extremities are swelled, and the distention produces an uneasiness in the former, and pain and a livid colour about the gastrocnemii muscles in the latter. The pulse is hard, without strength or fulness, slightly intermittent, variable, and irregular; yet it has not so much irregularity as in most of the cases recorded above.

This patient is uneasy in bed, though she raises her head almost upright; her sleep is disturbed by unpleasant dreams, and by startings, sometimes quite to an upright posture, without any cause discoverable to herself. She can incline a little to the left side, but never to the right, because it brings on a singular oppression, and a sense of weight drawing on the left side. When most distressed by dyspnœa she bends her head and trunk forward, and remains thus seated a considerable portion of the night, often sighing quickly and convulsively. She is subject to profuse sweatings, and very liable to take cold, and is then more uneasy.

This lady is still corpulent. She has taken much medicine, under the direction of eminent physicians, sometimes with temporary relief, but most com-

monly without any. The exercise of walking slowly, in pleasant weather, although it increases the palpitations at the moment, is followed with relief from the distressing feelings, which are increased when she sits still for a long time. She has no suspicion of her hopeless situation, and confidently expects relief from medicine, yet labours under a melancholy which is unnatural to her.

CASE OF HYDROTHORAX.

THE following case of hydrothorax will shew, that water may exist in the chest without the symptoms, which we have attributed to organic diseases of the heart.

MRS. T——, aged 56 years, of an excessively corpulent habit, had been affected for a great number of years with a scirrhus of the right breast. Finding her health decline, she at last disclosed it, and in coincidence with the opinion of Dr. WARREN, sen. I amputated it on the 30th of May, of the present year. We however informed her friends, that the probability of eradicating the disease was extremely small. The skin was in many places hardened and drawn in, and in others discoloured, and ulcerated at the nipple, so that it was found necessary to remove, not only what covered the breast, but some portion of that which surrounded it. A long

chain of diseased glands, extending quite to the axillary vessels, was also extirpated. She bore the operation well, lost no great quantity of blood, and recovered her appetite and strength surprisingly in a few days, while the wound healed rapidly. At the end of twenty days a difficulty of breathing commenced, and soon became so oppressive, that she could no longer lie in bed; partly, no doubt, on account of her extraordinary obesity. The pulse was small, quick, and commonly feeble, but sometimes a little hard, when any degree of fever was present. The countenance became pale, the lips of a leaden hue, the eyes dim. We were surprised at the change, and conjectured that the cancerous action had suddenly extended to the lungs. Yet she had not the slightest cough, and it was remarked by Dr. Warren, sen. that he had never observed that diseased action to increase, while the wound remained open. At last the lower extremities swelled, which might be attributed to the upright posture, and the pressure on the absorbent vessels in that posture. The appetite failed; she complained of a constant sense of depression at the stomach, and, without any remission of the difficulty of breathing, died on the 1st of July.

On the next morning the body was examined. The pleura in both cavities of the thorax was studded with small, white, and apparently homogeneous tubercles; the lungs contained a great number of similar bodies. The right cavity of the pleura was entirely filled with water, of which we removed at

least three quarts. The heart was of the usual size, very flaccid and tender; but not otherwise disordered. The liver was enlarged, of its usual colour, much hardened, and had on its surface, and in its substance, many tubercles like those in the thorax. It had also a great number of encysted cavities, each about the size of a hazle nut, which contained a thin yellow fluid. The gall bladder was wanting, and in its place there was a small, but very remarkable depression, without a vestige of any former gall bladder, for the coat of the liver was as smooth and perfect there as in any other part*. The pancreas was in a scirrhous state. The abdomen did not contain any water.

It seems, then, that water may exist in the cavity of the thorax, without any remarkable symptoms, except dyspnœa and difficulty in assuming the horizontal posture. But in organic diseases of the heart, there is a long train of frightful symptoms, distinguishable by the most superficial observers. We infer that these disorders have been unnecessarily confounded.

* See Soemmerring de corporis humani fabrica, vol. 6, pag. 188 and Baillie's morbid anatomy, pag. 248.

ARTICLE XI.

REPORT

RESPECTING A DISEASE COMMONLY CALLED

SPOTTED OR PETECHIAL FEVER,

WHICH HAS WITHIN A FEW YEARS

BEEN EPIDEMIC IN VARIOUS PARTS OF NEW ENGLAND.

Read, accepted, and ordered to be printed, at a Meeting of the Counsellors on the 21st of June, 1810.

THE Committee appointed by the Counsellors of the Massachusetts Medical Society, at their special meeting, on March 27th, 1810, "To frame a series of questions respecting the causes, history and mode of treatment of "the disease now existing in some parts of this commonwealth, commonly called spotted or petechial fever, to "address copies of the same to the physicians who reside "in places where the disease has prevailed, or does now "prevail, and to request the most speedy and minute replies to the same," have attended to the duty assigned them, and respectfully lay before the Counsellors the following report.

AT the time when the committee was appointed the public were in a state of great anxiety respecting the disease then epidemic in a part of Worcester county. The reports in common circulation respecting that disease were very alarming; and al-

though it had prevailed in different parts of New England since the winter of 1806, there had not been published any description of it, sufficient to guide the practitioner of medicine, either in recognizing or in treating it. At that time also the disease appeared to be almost daily spreading more and more widely, and it was impossible to foresee the limits which would bound it. Under these circumstances the committee felt themselves impelled to attend instantly to the duty assigned them; and they immediately prepared the following circular letter, which was printed without delay and issued on the day on which it bears date.

Boston, March 30, 1810.

SIR,

In consequence of the alarming extension of the very fatal disease, which is commonly called the *spotted fever*, the Counsellors of the Massachusetts Medical Society have considered it their duty to investigate with peculiar care every thing relative to the causes, history, and modes of treatment of that disease. They have, therefore, at their meeting on the 27th instant appointed the subscribers a committee to correspond with and collect materials from the fellows of the society and other gentlemen of character, in whose vicinity the disease has prevailed.

As one comprehended in this description, we take the liberty to address you; and, in behalf of the Massachusetts Medical Society, we beg leave to request you to answer all or any of the subjoined

queries. We beg leave at the same time to request, that if in any instance your replies are not founded on your own personal observation, but on information from others, you would do us the favour to notice from what sources such information has been derived.

It is the wish of the Counsellors that we should make a report to them on this subject, so interesting to every member of the community, as soon as the circumstances can possibly admit. We shall therefore be peculiarly obliged to you, if you will seize the first moment of leisure to prepare your answer. We are aware that your important engagements at this time must render a compliance with our request very inconvenient to you; and, did we not consider ourselves as acting in behalf of the whole community, we should not feel at liberty to make our call upon you so urgent. Should you be able at present to give very concise answers to a part only of the queries proposed, at a future day you might add whatever else shall have been furnished by subsequent experience and inquiry.

It will be most convenient both to yourselves and to us, if you will refer to the number of each question, without recapitulating it, and reply to each distinctly, in the order in which they are placed.

1. At what time, and at what place, did the first case of this disease occur under your observation?

2. What are the symptoms of this disease, the order of their occurrence, and the most usual duration of each?

3. Have you noticed any precursory symptoms, by which the approach of the disease can with tolerable certainty be ascertained?

4. Is the disease to be distinguished only by attending to the combination and course of the symptoms, or by any one or more peculiar symptoms?

5. Have any persons previous to the attack of this disease been subjected to any extraordinary fatigue or exposure, to irregularities or peculiarities of diet, or to any other circumstances which can be considered as exciting causes; and if in any, in what proportion of cases have such circumstances been noticed?

6. Have you noticed any circumstances which lead you to consider the disease contagious or infectious; or have you noticed circumstances which lead to the opposite opinion?

7. Are persons of any particular class or profession, age, sex, or temperament, peculiarly subject to this disease; or have persons of any particular description been peculiarly exempt from its attacks?

8. Have any particular evacuations or other symptoms marked the crisis of this disease; and has it in any cases under your observation been followed by affections of the joints or glands, by erysipelas or any other local affection; and what has been the termination of such cases?

9. Are there any symptoms in the early stages, or in the course of the disease, on which a prognosis of the event may be founded; and with what degree of assurance may such prognosis be formed?

10. Are relapses frequent; and do the symptoms differ from those of the original attack, either in kind or degree?

11. Do those who survive the disease recover speedily; or is there noticed any remarkable change in their state of health?

12. What modes of treatment have you tried or seen tried; and what has been the success of each mode?

13. What have been the external appearances on examination of the body after death; and at what distance of time after death have your examinations been made?

14. What have been the internal appearances ascertained after death by dissection, and at what period?

15. Have you at any former period seen the same disease, or any nearly resembling it?

16. Have there been any unusual diseases, or any unusual mortality among brute animals in your neighbourhood?

17. Are there any other points on which you can give information, which appears to you to be material at the present moment?

In reference to the second and fourth queries, we beg to call your attention particularly to the following objects;—1. symptoms denoting local affection of the brain, such as delirium or any peculiar affection of the mind, spasms and convulsions, remarkable insensibility, deafness, unusual dilatation or contraction of the pupils, paralysis of any part of

the body, &c. &c.—2. symptoms denoting affection of the stomach or any of the abdominal viscera, such as increased tenderness, fulness or tension of the abdomen or any region of it; vomiting or purging, the nature of the matters discharged either from the stomach or the bowels, &c. &c. In reference also to the 14th query we wish to learn especially the appearances in the head and stomach.

It is unnecessary to suggest to you, as being likewise objects of attention under the second query, the state of skin as to temperature, dryness or moisture, and as to spots of different descriptions which may be remarked on it; the countenance, especially the eyes; the respiration; the pulse, whether dissimilar in different parts of the body; the urine, &c. Nor can it be necessary to state the importance of noting the stages or periods of the disease, at which any observations are made or any remedies are tried. We may, however, remark that, as violent diseases have sometimes grown more mild in the latter part of an epidemic season than in the beginning, it will be useful to note at what part of the season your various remedies have been employed.

There are some other questions which might be added to those above, particularly respecting the soil and other circumstances of the districts in which your observations have been made; respecting the states of weather before and during the prevalence of the present epidemic; the diseases which have prevailed during the year past, the direction in which the disease now prevailing has been extended, whe-

ther this has or has not corresponded with the prevailing course of the winds, or with the ordinary lines of intercourse; respecting any thing peculiar in the grain raised last year, &c. But probably your time is now too much occupied to attend fully to questions on these subjects; and with your permission we may perhaps address you respecting them at a future time.

SHALL we, in addition to other requests, beg you to inform us, if possible once a week, or as often as you can, what may be the progress of this lamentable disease within the circle of your observation. Your letters may be addressed and sent to Dr. Thomas Welsh, in Boston, whenever a direct conveyance by mail or otherwise can be procured; in other cases they will reach us less directly, but very safely, if inclosed to Dr. Oliver Fiske, at Worcester.

WITH the most sincere sympathy for the sufferings, to which you and your neighbourhood are exposed; and with great respect,

We are sir your obedient servants,

THOMAS WELSH,
JAMES JACKSON,
JOHN C. WARREN,
} Committee.

COPIES of this letter were sent to all persons from whom information could be expected, so far as they were known to the committee. The letter was also published in the Columbian Centinel and Independent Chronicle, in order that any persons possess-

ing useful information might be induced to communicate it.

In reply to this letter the committee have received communications from twelve persons, all fellows of the society.* Some of these replies were received early in the month of April; and, corresponding with the hopes and, in some measure, with the expectations of the Counsellors, they shew that the alarm respecting the epidemic had exceeded the real danger, and that the disease was found as manageable as most other acute diseases. Similar information was about the same time communicated to the public, directly from the seat of the epidemic, through various channels. The committee did not therefore find themselves obliged to make so immediate a report to the Counsellors as was contemplated at the time of their appointment. They now offer an abstract of the information they have obtained, with such remarks as the subject suggests to them.

The last summer was very remarkably cold. The month of October following was warmer than

* From Doctors Payne, Fiske, Babbit, Rice, Robert Cutler, Whitton, Flint, William Cutler, and Haskell, in the county of Worcester; and from Doctors Bartlett, Hurd, and Chaplin, in the county of Middlesex. Likewise indirect communications have been received from several gentlemen of respectability in the State of Connecticut.

The few cases, which have occurred under the inspection of the individuals composing the committee, have necessarily guided them in some measure in preparing their report. Several such cases, with dissections when fatal, are subjoined.

usual, and very pleasant. In the early part of November a little snow fell once or twice, on the 21st a larger quantity, and on the 24th there was a severe snow storm. But in general, from the beginning of November to the 12th of January, the weather was very calm and moderate; the heat was greater than usual; there was no storm of any consequence, except that mentioned; considerable rain fell after the 1st of December, but very little snow; the air was mostly humid and foggy, and the wind very frequently from the south west. January 12th and 13th, cold; afterwards moderate like spring weather, mild and pleasant, or damp and dull till the 19th; on that day wind very high; 20th, wind abated, but for three days the weather was very remarkably cold.* From this time the heat of the atmosphere rose, but the remainder of January was generally cold. On the 24th and 25th of this month a little snow fell, but not enough to make good sleighing. In the early part of February the weather continued rather cold; in the latter part it was moderate; a little snow fell occasionally, but did not lay, so that the ground was constantly uncovered; very little rain. In March there were seven days on which snow fell, and once in considerable quantity; the snow was commonly followed, or preceded by rain on the same day, and on three other days rain alone fell. The weather was sometimes very pleasant, but in general colder in pro-

* The committee regret very much that they are not able to furnish an exact account of the temperature and course of the winds, through the six months past.

portion than most of the winter. On the 1st of April it snowed all day and rained in the evening; after this the month was very dry; the weather was generally clear, temperature moderate, and, except chilliness, as usual with the east winds, was very pleasant. On the 27th we had thunder and lightning with showers; on the 29th considerable rain. In the month of May the weather has been, with very few interruptions, fair and clear; scarcely any rain, with the exception of a few showers on the 29th and 30th; wind a large part of the time from the south and west. The latter part of this month has been very uncommonly warm, and even sultry, with winds from the south and south-south-west.

The last summer and autumn, and the first part of the winter were remarkably healthy throughout the country. The disease under consideration appeared first in the town of Dana, about the beginning of the present year, but not in any considerable number of instances until during the cold weather, after the middle of January. From the accounts transmitted to the committee it appeared at Petersham in the latter part of February, and at Barre, Oakham, Rutland, Paxton, Hardwick, New Braintree, Brookfield, Spencer, Sturbridge, Winchendon, Athol, Gerry, Leicester and Worcester, in the course of the month of March, mostly about the third week in that month. The above-mentioned towns are all in the county of Worcester. It appeared in that portion of Cambridge, called Cambridge-port, Middlesex county, on the 24th of March, and in April

at Lancaster, county of Worcester. In the course of April and May a few cases have occurred at Boston, and perhaps an equal number in proportion in many towns in the counties of Worcester and Middlesex. During May it appeared in Springfield, county of Hampshire, and had not subsided in the second week of June.

Most of the country, in which this disease has appeared, is inland and very elevated; it abounds with hills and vallies, has many ponds and many running streams and fresh-water rivers. In Cambridge-port, the first place near the sea-coast, at which it was observed, it was confined for the most part to the land which was recently salt meadow, and which is now intersected by many foul ditches. In Boston this disease, as also typhus, has occurred most frequently in those parts of the town exposed to the flats and water.

NATURAL HISTORY OF THE DISEASE.

This disease has been of various degrees of severity; in a large proportion of cases very mild; in some, severe, and in a few destroyed life suddenly, like the plague. The communications, which have been made to the committee, relate chiefly to the disease in its gravest forms. The history which they give must therefore be understood as relating mostly to the severe cases; and they are not furnished with the means of making all the discrimina-

tions which could be wished. They are however informed that in the milder cases the symptoms differed only in degree, not in kind.

The invasion of the disease is generally sudden and violent. In its course all the functions of the body are more or less interrupted, and often some of them are entirely suspended. The subject of it is seized in the midst of his usual labour or occupation, and oftentimes is struck down suddenly, almost as by a stroke of lightning. The first symptoms are various, such as local pain or paralysis, delirium or coma, and rarely spasms or convulsions.

The disease often commences with shifting pains. The patients suddenly feel a pain in one joint or one limb, often in a finger or toe, in the side, stomach, back, neck, or head. Sometimes the sensation is like the stinging of a bee, frequently it is most excruciating pain, which at once arrests and commands the whole attention. This pain moves from place to place without losing its violence, generally approaching the head, and is often confined to one side of the body. It is said that the left side is more frequently affected than the right. The head is more frequently first affected with pain than any other part; and when not affected at the first moment, it almost invariably becomes so in a short time. The pain in the head is oftentimes intolerably severe, so that it is compared to the beating of hammers upon the part; and the patient says he shall become crazy, if it continues.

Partial loss of sensibility and paralysis are, in other cases, the first symptoms, and often occur in the course of the disease, when they do not in the beginning. The powers of sight are affected in various degrees from a slight dimness to absolute blindness. In like manner the sensibility of the skin and parts subjacent is diminished, so that a limb becomes numb or feels as if it had been asleep. The other organs of sense have not been noticed to undergo similar affections. In the muscles of various parts, paralysis has been occasionally observed; as in those of one hand or foot, and oftentimes in those subservient to deglutition. In some cases hemiplegia has occurred at the commencement; and it is particularly worthy of remark that often the greatest weight of disease falls on one side of the body; insomuch that not only the voluntary muscles but the vascular system has been much more affected on one side than on the other.

Not very rarely the disease commences with delirium; and very frequently this symptom follows a violent pain in the head in a very early stage of the disease. The delirium is often mild; in some cases however, where it is attended with flushed face and eyes, great heat in the head, and violent pulsation of the carotid arteries, it produces a fury, which is scarcely to be restrained. In a few instances the patient has become blind and raving within half an hour after the attack.

Stupor and coma, likewise convulsions and spasms occasionally attend the access of the disease; but they are more frequent in its later stages.

In whatever form the disease commences, there suddenly ensues great prostration of strength. In some instances the patient is described as almost immediately falling down under the weight of disease. This prostration is accompanied or followed by universal or partial chills; the skin becomes dry and pale, or mottled like one who has been long in the cold, eyes glassy, nose contracted, the face sublivid, with paleness around the mouth, and the countenance expressive of the utmost anxiety and distress, or its features dissolved with a loss of all character and expression; the whole body becomes cold, respiration very laborious, especially in children, pulses very small and feeble, slow at the commencement but shortly very frequent. If there be neither coma nor delirium, the spirits are very much dejected, the patient suffers extreme solicitude and anxiety, with apprehensions of death, frequent sighs, restlessness and agitation. He complains of oppression and faintness, with undescribable distress about the praecordia and a sensation of fullness at the stomach. Frequently eructation, nausea, and vomiting ensue, and also fainting in the early stages of the disease; and the vomiting occasionally becomes incessant, embarrassing and defeating every effort to give relief by internal medicines, while it exhausts the patient.

The different stages of this disease and the duration of each are not very accurately distinguished by most of those, who have made communications to the committee. Doubtless this is because diapho-

resis has commonly been established at an early period of the disease, which has been followed by a mitigation or a subsidence of the symptoms. How far this diaphoresis has been produced by art alone, and whether there be not a natural tendency to this termination, may be matter of doubt. It is generally represented as the effect of art; but it is remarkable that the efforts for this purpose should have been very generally successful, if there is not any natural tendency to its production.

By some however it is noticed, that the symptoms of the first stage, such as have been described, become modified in the course of from eight to twenty-four hours. Within that period some have died. But ordinarily, except where the powers of life are too much exhausted, the symptoms of the second stage supervene. The pulses become more full and regular, the skin becomes warm, countenance flushed, and in plethoric subjects especially, even red and florid; respiration short and very difficult from a sense of fullness in the lungs, but more regular than in the early periods of the disease; eyelids swollen and eyes staring, with a throbbing pain in the head; light distresses and noise irritates; and great restlessness, general anxiety and frequently delirium ensue.

In a large proportion of cases these symptoms have all subsided, and the disease has terminated within three days; often in one. Even in cases where the attack has been very violent, and the powers of life almost overwhelmed at first, the patient

has so far recovered as to be very comfortable in three or four days, suffering only a slight debility. In many cases, however, while the severity of the disease has abated, it has nevertheless continued under a milder aspect, and exhibited the less equivocal characters of typhus; under which circumstances the termination has rarely been fatal. To this remark exceptions have been noticed in May, and the early part of June. Relapses have occurred in many instances with the same symptoms as in the original attacks; they have rarely if ever been followed by death.

Among the varieties of the disease, the following is given as a description of some cases which have occurred especially among females. "Universal deadly coldness; skin white as polished marble and smooth; countenance perfectly placid; not one distorted muscle; pulse in the wrist imperceptible; motion of the heart scarcely to be felt; respiration visible only by gasping, and that not frequent; and as it were only a step between this imperfect state of life and death." Even from this state of deadly stillness patients have been restored to life and health.

As has been already mentioned, some die in the early stages of this disease. A few are taken off suddenly in ten or twelve hours; others in twenty-four, thirty-six, or forty-eight hours from the first symptom of disorder. Death rarely occurs after the third day; indeed some of those practitioners, who have been most conversant with the disease,

consider their patients safe if they pass through the first twenty-four hours without any mortal symptoms.

The following is a description of the termination of the disease in cases, in which it was fatal within two days. After the symptoms of the second stage, as described above, have continued from six to ten hours, the skin becomes pale and cold; pulses very quick, small and irregular; respiration less hurried, but very laborious; countenance fallen; the solids flaccid; and petechial spots of dark colour, violet or livid, suddenly appear on the superior extremities, and immediately over the whole body. At length confusion of mind with constant drowsiness, inability to swallow, respiration more frequent and more laborious, with fluttering pulse, announce the immediate approach of death.

From the various descriptions of the disease, which have been furnished them, the committee have endeavoured to give a general view of its symptoms, their course and order. Every symptom is not to be observed in every case; on the contrary there is great variety in the symptoms, and it is said that there is great variety also in the order in which they occur.

In this general view it has been impossible to describe all the variety of affections with all their circumstances, such as are more or less frequently observed in this disease. It may therefore be useful

to present the most important symptoms in an unconnected view; and in doing this it may be necessary to repeat in some instances what has already been stated.

The face and eyelids are often swollen; and in some cases the face is swollen and black like that of a person strangulated. The eyes are mostly described as being deprived of their natural lustre, dull and glassy, or red and watery, with the pupil, sometimes contracted, more frequently dilated. Sometimes the pupils are seen to vibrate from one extreme to the other. The eyes are also described as appearing more brilliant than usual, with a wild penetrating stare; and it is said that this state of the eyes is sometimes noticed several hours before the patient is aware of any morbid affection.

The sensations in the head are various; such as dizziness, vertigo, pain; throbbing, severe, excruciating pain; and stricture across the forehead and eyes. These sensations are often followed and sometimes accompanied by delirium. The delirium has all the varieties observed in other acute diseases, from that which is mild and light, and indeed little else than incoherence of ideas, to that which is low and muttering, or that which is violent with rage. Coma as well as delirium is of frequent occurrence, and is even more common in the late stages of severe cases. There are instances, especially in adult males, in which consciousness remains to the last unimpaired, although the issue be fatal.

There are also other symptoms which appertain to the animal system ;* the following are particularly noticed. Numbness or total insensibility and paralysis in a larger or smaller portion of the body, which occur often in the first stage of the disease, and continue through its whole course, and even after other symptoms have subsided ;—a sense of lassitude and weariness ; soreness of the flesh, especially in children ; and spasms which frequently occur, and shift suddenly in the same manner as the pain does from part to part ; sometimes resembling hysteric spasms, sometimes occasioning the head to be drawn back as in opisthotonos.

The respiration is much and variously affected ; in general it is difficult. Cough rarely occurs, and the difficulty of respiration has not commonly appeared to arise from an inflammation of the lungs. In two cases, however, symptoms of pneumonia have arisen, and in one of them the existence of that affection was demonstrated after death.†

The actions of the heart are very feeble in this disease ; about its region there are often very distressing sensations, described as death-like feelings. These sensations are occasionally relieved by spon-

* This phrase is used in the sense given to it by Bichat—under this division he comprehends the brain, and its dependant organs—viz. the nerves and voluntary muscles, so far as they are dependant on the brain.

† These cases are specially noticed, because we are told that this disease has prevailed on the borders of Lake Champlain, in Vermont, and also in Montreal and its vicinity ; and that in those places it has been combined with pneumonic inflammation.

taneous vomiting, and possibly they may have some connection with the gastric region. In a few mild cases the pulses are little altered; but commonly they are very feeble, and except at the commencement, frequent. It is said that they sometimes denote more strength in the system than it is found to possess. They are sometimes hard; more often they are intermittent, and irregular both in force and frequency; they are remarkably variable, so that in the course of an hour, and indeed in much less time, they change from quick to slow, from strong to feeble, and vice versa; at the accession of delirium early in the disease, they have been observed to undergo a sudden acceleration from sixty or seventy to one hundred and twenty, and even to one hundred and fifty in a minute. The pulsation of the carotids is often very considerably greater than that of the radial artery.

The phenomena of the skin have received considerable attention; some of them have given to this disease its vulgar name. In the early stages the skin is perhaps invariably dry; at a later period spontaneous sweats have broken out on the head, chest, and superior extremities. A doubt has been expressed whether universal sweating would not occur without the aid of art. In a few cases which have occurred in Boston and its vicinity there has been observed a great tendency to this evacuation, and it has very readily become profuse. Doubtless there have been cases in which it was very difficult to excite diaphoresis, but in many it has been suffi-

cient to put the patient in bed, and give him a cup of any warm liquid. The sweats are said to have an offensive and peculiar odour; it is fetid; but this does not seem to describe it sufficiently. It has been compared to the smell which arises from a dead rat within the wainscot of a room. It has also been compared to the smell of a mercurial sore mouth.

In many cases the skin is said to be remarkably smooth; but this is not an universal appearance.

The *spots* on the skin are of various descriptions. They occur in all stages of the disease; less frequently however on the first than on the subsequent days. Frequently a rash or miliary eruption only appears, or a few blotches on the inside of the elbow, and other similar parts; and it has been suggested that these may be produced by the mode of treatment usually adopted. The blotches are florid, or red and fiery. An appearance like measles has also been noticed, and likewise vesicles and pustules, which have been compared to the vaccine and variolous eruptions. In some cases these spots and eruptions have appeared at successive periods two or three times in the course of the disease. The vesicles and pustules are very frequently torn by scratching; after which or without being torn they are commonly followed by scabs of a brown color; but occasionally they are followed by ulcerations which do not heal until after recovery. These affections of the skin are often attended with itching; and independent of them, itching very frequently occurs, especially on the third day, when the symptoms become more favourable at that time.

This itching is sometimes extremely violent, so that the patient will almost tear up his skin in endeavouring to alleviate it. All these affections are frequently noticed at the time when the more important symptoms abate, or subside.

In a few instances, vesicles containing a bloody fluid occurred in the county of Worcester. These vesicles were compared to blood blisters, and were about the size of a large pea; they appeared in various parts of the body and limbs; in a few days they broke, discharged a bloody fluid, and scabbed over. In one case, in which the attack was very violent, blisters resembling those produced by cantharides appeared on the second and third day on the breast, and on one foot. They were about five inches in length, and nearly one in breadth. On the fourth day from the attack, some of those on the breast and that on the foot became black and dry, and the skin was sphacelated. The eschars with due treatment left clean ulcers, which healed without difficulty.

The appearance of petechiae and vibices has been noticed. They occur in comparatively few cases of the disease. They are of worse portent in proportion as they are more dark coloured. They do not however always occur in fatal cases, nor are they confined to such cases.

It is not easy to determine in how large a proportion of subjects the skin is affected with spots and eruptions. Under the observation of some gentlemen, they have been very rare. One remarks that in eighty cases, among which twenty were very severe, he had seen only four instances in which spots

or eruptions of any kind had taken place ; and he adds that these had not been the worst cases under his care. Another estimates the proportion of cases, in which there had been discovered some of the affections which we have described, to be two thirds of the whole. He includes, however, very slight affections, which have often disappeared in a few hours.

Desquamations of the cuticle, and more rarely œdematous swellings of the extremities, have occurred at the termination of the disease.

The tongue is usually moist and white through the whole disease, when it terminates within three or five days. When it continues longer, the tongue becomes darker coloured, yellow or brown. It is sometimes very clean and red.

There is seldom any remarkable thirst ; in a few cases it has not been at all greater than natural. Some patients have a desire for cold water, but not for any other liquid. The appetite is diminished, but it is not always so entirely destroyed as in most other acute diseases. Children particularly sometimes express a strong desire for food. Nor are the powers of digestion always suspended so entirely as in most other febrile diseases. Vomiting very frequently occurs, but in the first few weeks in which the disease prevailed bile was very rarely thrown up. The matters ejected from the stomach were commonly the articles recently swallowed and a ropy mucus. Yet at all times there has been discharged by some persons a dark green liquid ; and in some instances a liquid of a blueish colour.

The bowels are commonly very quiet, and are not readily excited to action, especially on the first days of the disease. When discharges are made from the bowels on those days, they are commonly of a dark, green colour, and to cursory observation resemble tar. It is said by one gentleman that the discharges from the stomach and bowels are rarely coloured by natural, healthy bile until the third day. In two cases we are told that dysentery supervened in an advanced stage of the disease; but it was of short duration. Patients sometimes complain of soreness of the throat; and on inspection, the fauces are found very red, but not swollen in any part. The sensation of soreness is often just below the fauces where the parts cannot be seen. Aphthae have been occasionally observed.

In most cases the urine has not been very different in its appearance from that in health, but the quantity has been less. Strangury has been ranked among the occasional symptoms; but a question may be permitted whether this has not been produced by the remedies employed.

There is an irregularity in the course of the symptoms in this disease, and so also in their duration. Blindness continues from half an hour to twenty hours; severe pain in the head, and delirium from four to twenty hours; deep coma from six to twelve hours, and even from the beginning to the end of the disease, especially in children.

In a few instances slight affections of the parotid glands have been observed, but in general, glandular

swellings have not been noticed by our correspondents. In some cases swellings have occurred on the joints and limbs. These have been very sore to the touch, and their appearance has been compared to that of the gout. The parts so affected feel as if they had been bruised. These swellings arise on the smaller as well as on the larger joints, and are often of a purple colour. Those on the small joints especially sometimes disappear as the disease approaches its crisis. It is not stated that the disease of the whole system ever subsides when these local affections take place. By some practitioners the inflammation in these cases is called erysipelatous, and probably with justice.

In a few instances purulent discharges from the ears have been noticed. They have not been accompanied by any remarkable change in the course of the disease. In a small number of cases the disease has been followed by deafness, from which the patients have not speedily recovered. Two persons were affected in this way in the year 1808 at Amherst, and their hearing has not yet been restored.

By some of our correspondents it is said that recovery from this disease has been rapid, and the subsequent state of health as good as usual. But the exceptions to these remarks are certainly numerous.

The attack of this disease has been described as sudden and violent; but there are cases in which the ordinary symptoms occur in a slight degree, and increase gradually for hours and even for two or three days before the disease becomes very serious.

We may also add in this place that in some parts of the country there were many persons who exhibited some of the symptoms of the disease, such as local pain, and numbness, but who were not so much affected as to be confined.

In general our correspondents do not recognize this disease as having before occurred under their notice. Two gentlemen believe that they have in the course of many years seen a few cases of the same character. Six or eight cases occurred in Amherst in 1808.

The replies to our questions respecting the diagnosis are not very full. It seems to be generally believed that the disease is to be distinguished only by attending to the combination and course of the symptoms. One gentleman states that the most general characteristics are "universal prostration of strength, and a depraved action of the sensitive organs."

It is very generally agreed that this disease is not contagious.

Neither very young infants nor aged persons have been so subject to this fever as persons in middle life. In one town nearly all those affected were between eighteen and thirty years of age; but the same remark was not made elsewhere. By some gentlemen it is remarked that females are more subject to the disease than males; and this was true in Worcester, the only town from which we have received a list of the sick. Yet one gentleman states that it attacks more especially the most healthy and robust, male and female. Women in different stages

of pregnancy have had severe attacks and have done well; but they have not all been so fortunate. Blacks are not exempted from the disease.

To this part of our report, which with a few alterations is the same as it was when read to the counsellors at their meeting on the second of May, we have now to add; that in cases of this disease which have occurred since the middle of April, as observed in Boston and Lancaster more particularly, some change has been noticed in the symptoms. Discharges of bile from the stomach, and foulness of the stomach and bowels, have become more common; and so also have hardness of the pulse and heat on the surface of the body. In many of these cases the bile has appeared in undue quantity and much altered in its character; its consistence very thick and tenacious, and its colour dark. In several fatal cases at Lancaster, and in two not fatal, a dark matter was thrown up, which was called "black vomit." Whether this matter was the same called by that name in the autumnal fevers of warmer climates, the committee are not assured.

It appears also that in various parts of the commonwealth the common typhus is much more frequent than usual at this season of the year; appearing in many instances with its ordinary symptoms; but in others with a character more or less resembling the disease which we have described.

PROPORTION OF FATAL CASES.

Respecting the proportion of fatal cases, the committee have not the means of making any ac-

curate statement. It would be very useful to obtain from each town in which the epidemic has appeared, the number of its inhabitants,—the length of time during which the disease has prevailed,—the number of persons who have been affected by it,—the number of those to whom it has proved fatal,—and the average number of deaths in the corresponding periods of other years. The committee will state as much as they have yet learned relative to this branch of the subject; respecting which they have made some efforts to obtain more information.

At the first appearance of this disease in the county of Worcester, a very large proportion of those affected with it died at an early period of the disease. Since it has extended more widely, its violence has diminished, and the proportion of deaths has become very small. So it is represented by our correspondents generally; the following are the particulars given by several of them.

In 1808 the disease was seen at Amherst; and of six cases three were fatal. In the present year at Cambridgeport, four persons died.* At that place there were six severe cases, but a much larger number which were mild. Under the inspection of one physician in the county of Worcester there occurred two deaths in one hundred and thirty patients; under that of another, one death in upwards of fifty patients; and under another in the same county, one death in nearly one hundred patients.

* One adult and three children;—who were sick 17, 29, 30 and 42 hours.

In a statement of ninety-one cases in the town of Barre nine are marked as fatal. It is mentioned in the same statement that there were thirty-nine other cases, the issue of which is not mentioned; but from some circumstances it may be inferred that none of them were fatal.

APPEARANCES AFTER DEATH.

The advantages, which arise from the examination of dead bodies, have been exceedingly conspicuous in the investigation of this disease. From this source have been obtained facts of great importance in illustrating the nature of the complaint, and pointing out the propriety of certain modes of treatment, which the symptoms indicated in a less distinct manner. It is a subject of regret that the examinations of those, who have fallen victims to this disease, have not been more general. All those, which have been carefully detailed, are subjoined. We have satisfactory reasons to believe that the morbid appearances in these corresponded with those of some other cases, which have not been fully communicated. The cases here given have principally occurred in the neighbourhood of Boston, so that the committee are able to vouch for their accuracy. This is also established by the remarkable coincidence in the most important circumstances noticed.

We shall now give a general statement of the most common, and the remarkable morbid phenomena, leaving the comparative frequency of the particular appearances to be observed in the cases introduced hereafter.

EXTERNAL APPEARANCE.

Soon after the patient expires, and in some instances a short time before, the skin assumes a formidable livid colour. This appearance is either generally diffused over the skin, or else it exists in spots, commonly of an irregular form, but occasionally rounded. The lividity is more remarkable at first on the anterior parts of the subject, especially on the fore part of the face, neck and shoulders, than afterward; for it gradually subsides from these to the posterior parts of the trunk. Wherever the cuticle has been removed by vesication the skin is almost black and often covered by fluid blood. On the other hand the petechiae, which existed during life, become paler, vesicles or phlyctenae, eruptions and redness of the tunica conjunctiva disappear.

HEAD.

When the cranium is separated from the dura mater this membrane usually discharges a considerable quantity of blood. As soon as the dura mater is cut through, a quantity of serous fluid commonly escapes from under it, and the whole surface between the dura mater and tunica arachnoides is found to be quite moist with the same fluid. This is not always transparent like water, but sometimes quite red coloured. The longitudinal sinus is filled with blood, and when wounded discharges a very great quantity of this fluid, which pours into it from the cerebral veins. Having raised the dura mater, we discover an extraordinary fullness of the veins

on the surface of the brain, if the longitudinal sinus is still entire. This appearance however varies according to the duration of the disease. In those, who have perished within the space of twelve hours from the first invasion, the large blood vessels are excessively crouded, while in those of twenty-four hours continuance or longer the minute vessels are more distinct ; and the other appearances, we are to describe, are more conspicuous, in proportion to the duration of the disease. The tunica arachnoides and the pia mater are remarkably altered in appearance by the effusion of an opaque substance between them, which may be called coagulated lymph, or semi-purulent lymph. This substance is frequently of the yellowish colour of pus, with a consistence between the tenacity of lymph and the fluidity of pus. At other times we see it possessed of the aspect of well characterized lymph. This effusion accompanies the course of the vessels very generally. In no instance of the duration abovementioned have we seen it wanting in this situation, while it is always very irregularly diffused in the other parts. The space between the thin membranes contains also a considerable quantity of serous fluid. The two hemispheres of the brain adhere to the dura mater, near the longitudinal sinus, and to each other with so much strength, as often to require a laceration or incision through the substance of the brain, in order to arrive at the corpus callosum. The medullary substance exhibits a great number of bloody points at the sections of the vessels, while the cortical part

seems paler than usual. The lateral ventricles always contain a notable quantity of water. This varies of course. Sometimes these cavities may be seen greatly enlarged, and at others with not more than three or four times the quantity often found in healthy brains. The plexus choroides is often thicker and harder than natural, but always very pale from maceration in the effused water. The membrane attached to the plexus exhibits very considerable alterations from its healthy transparency to a state of morbid thickness and opacity. The membranes at the basis present the same appearances as at the vertex of the brain. A large quantity of serum is found there; and an effusion of coagulated lymph in mass has been witnessed in the same part.

THORAX.

The heart generally exhibits some appearance of disease. In every instance the small vessels on the surface of the organ are beautifully injected: the external coat is sometimes the seat of a deposition of lymph, and even the inner lining and valves are occasionally altered from their healthy texture. The right and left cavities usually contain a small quantity of black blood, quite similar in appearance and quantity; and even the aorta has been seen gorged with the same dark coloured fluid. The structure of the lungs is not commonly deranged. These organs are of a light and healthy colour on the fore part; while the posterior or lower parts are discoloured by the blood which sinks into them. Their substance

contains a very variable portion of blood, dependant no doubt, on certain circumstances accompanying the cessation of life. It seems that when the lungs are full of blood the liver is flaccid, and when the lungs are empty the liver is large and turgid. In one case the cavity of the thorax was the seat of very considerable disease. The heart was inflamed and exhibited a large thick flake of yellow lymph on its anterior face. The pleura of the right side, both of the ribs and lungs was covered with the same substance, but more nearly approaching pus in its consistence; and the cavity of the pleura contained a very large quantity of half formed pus. The colour of the lungs externally was an ill-looking purple, and the pleura over them seemed to be shrivelled and adhered to the diaphragm. Their consistence was uniformly firm in this case, owing perhaps to the large quantity of blood they retained.

ABDOMEN.

The contents of this cavity have scarcely shown any marks of disease. Its opening is not attended with so unpleasant impressions on the organ of smell as in most other diseases. The coats of the stomach are generally free from the slightest morbid appearance; but in a single instance, the last, which occurred in the vicinity of Boston, the mucus coat was in a state of very uniform inflammation, and the veins were visible through the peritonæal covering. The contents of the stomach are not usually remarkable; yet they have sometimes a resemblance to

coffee-grounds, or more nearly to brown soup; while in other cases they consist of greenish mucus; each without any offensive odour. The duodenum and the whole tract of small and large intestines are in a healthy state. The latter commonly contain a considerable quantity of fecal matter. The liver and spleen are distended in very various degrees, as we have already intimated, and are quite free of any morbid change, unless we except an extreme livid colour. The gall bladder is generally full of bile, which is sometimes of a dark colour and ropy consistence. The pancreas and kidneys present no-nothing extraordinary.

The bladder is commonly full of urine.

The muscular substance as well as all other parts, which are filled with and exhibit the colour of the blood, is of a livid appearance, such as is not witnessed in other diseases. This fluid has therefore necessarily a very dark hue. It is commonly accumulated in the cerebral vessels; and is in moderate quantity in the venæ cavæ and cavities of the heart. After having flowed out it often coagulates. The coats of the blood vessels are not altered from their healthy state, if we except the change, which has been described as existing on the outer surface of the veins of the brain.

The latest period after death when any of these subjects has been examined was from twenty to twenty-four hours; at which time, there was a less offensive odour exhaled from the body than during life, and there were no signs of the commencement of putrefaction.

THE MODES OF TREATMENT WHICH HAVE BEEN ADOPTED, AND THEIR EFFECTS.

THOSE evacuations which are ordinarily made in the commencement of acute diseases have been thought hurtful in this. Blood-letting has not been frequently practised by the gentlemen, to whom we are indebted for communications. They have been deterred from this practice by the opinions they have entertained respecting the disease; and by the reports of some of those, who had had previous opportunities of observation on the subject. Some cases however have occurred in which the lancet has been employed with benefit. These will be particularly noticed in the remarks which the committee will make on this head.

CATHARTICS have been thought injurious till the third day of the disease; but enemas have sometimes been administered on the second day, when specially indicated, without injury. In general emetics have also been thought injurious on the first and second days; but in this respect the caution has not been so universally regarded. Especially in cases "where sickness at stomach has seemed to arise from a prior indisposition in that organ rather than from a morbid affection induced by the disease," it is said emetics have been found useful. It is said also that where the vomiting has been frequent, yet only white mucus and the liquids recently swallowed have been ejected, emetics have not afforded relief. When medicines of this description have been administered opium has been given afterwards.

The practice which has been by far the most generally pursued, and considered of primary importance, is to produce early and long continued sweating. In many cases, especially mild ones, this has been very easily effected; in some severe cases it has been very difficult. The means which have been adopted for this purpose are very minutely detailed. The remedies are internal and external. The internal remedies employed have not generally been those now most commonly directed to produce diaphoresis in fevers, such as antimonials; and which appear to excite the capillary vessels without increasing the actions of the heart or large vessels either in force or frequency. Preparations of antimony particularly seem not to have been at all tried; but ipecacuanha, which resembles in its operation the preparations of that mineral, has been employed very successfully by some in combination with opium.

In general the internal remedies administered in this disease with a view to produce sweating have been those called cordials. The external remedies have been warmth and moisture, and such articles of cloathing as would more effectually confine both. The following is a summary of the directions commonly given on this subject.

The patient is first put into a warm bath, or his feet are bathed in warm water; then, being well rubbed, he is to be laid in bed between blankets, and bed cloaths added in proportion to his sensations, or to his actual temperature when his sensibility is very much diminished. Around him are to be placed

bottles of hot water, or billets of wood heated in boiling water and wrapped in flannel; or he is to be wrapped in flannel wrung out of boiling water; sinapisms are applied to the feet; and he is to swallow frequently some warm liquid of the description given above, preferring to use the weakest which appears adequate to the particular circumstances of the case. The articles most commonly employed for this purpose are hot infusions of the leaves of mint, penny-royal, and other similar plants, wine-whey, wine and water, wine, brandy and other ardent spirits more or less diluted, camphor, sulphuric ether and opium. It is not generally thought useful to excite profuse sweating. To this there appears to be a very considerable tendency, when moisture is once produced on the skin; and some very judicious practitioners have thought it necessary to check this great evacuation by wiping and rubbing the skin with warm dry cloths. But it has been thought very important to maintain the perspiration in a moderate degree for a length of time proportioned to the severity of the case; that is from twenty to forty hours, and even longer in some instances. To maintain this process not only cordials, but nourishment is given, such as the patient's stomach can bear; which in many cases is strong soup.

Under this treatment most commonly the violent symptoms and not very rarely all the appearances of disease have subsided. When relief has thus been obtained the diaphoresis must not be suddenly checked, nor must the patient be hastily moved

from his bed. The skin should be allowed to dry gradually, or if very much loaded with moisture should be frequently wiped and rubbed; but the patient should not be removed nor the bed cloaths shifted till the third day.

The administration of the articles mentioned has been regulated not merely with a view to promote diaphoresis. They are also thought necessary to excite the actions of the heart and large vessels and to produce warmth. In proportion to the necessity of the case, the strength and quantity of these articles have been increased or diminished. In many cases very mild cordials assisted by external heat and cloathing have been found sufficient to effect the purposes desired; in others the most bold and liberal use of the strongest cordials has been thought necessary; they have been borne in very large quantities, and it is said that life has appeared to depend on their effects. In administering medicines of this description the quantity has not been regarded; the practitioner has measured the use of them only by their effects. In cases of extreme coldness, great torpor and frequent vomiting ardent spirit has been given undiluted; and when it would not remain on the stomach if given cold, it has been made hot. Under such circumstances a quart of brandy has been given in twelve hours. It should however be noticed that some of our correspondents who have been very conversant with the disease protest strongly against this liberal use of cordials; and believe that much injury has been produced by them. In the lethargic state,

which is, it is said "the death state of the disease, unless a speedy change be produced," tincture of opium has been thought eminently serviceable. In cases which have been thought desperate fifty to a hundred drops of this tincture administered every half hour "have almost invariably removed the lethargy." When deglutition has been rendered impossible by paralysis opium has been administered in enemas with the most salutary effects. In cases of spasm also opium has been given in large doses* with the most happy consequences.

Arsenic has not been very much employed by our correspondents, and its effects are not particularly stated. In general if its use is mentioned, it is with approbation. Two gentlemen have administered the usual preparation of this article in the convalescent state, and they think it has been beneficial.

At the same time that cordials have been employed internally, and heat to the general surface of the body, cold water, snow, and ice have been applied to the head. These applications have been made, when there was violent pain in that part with heat and flushed face, and when there was violent delirium. The cold applications have in these cases afforded great comfort to the patient, and have mitigated or removed those very important symptoms. Sulphuric ether dropped on the head and allowed to evaporate, has produced similar good effects.

* In one case a scruple was given in the course of three hours; in another forty-two grains in forty-eight hours.

Vesication on the back of the neck, or on the head, forehead, and temples has likewise been followed by most important good effects, not only in relieving the complaints about the head, but in abating other violent symptoms of the disease. Vesication over the stomach has been very successfully employed to check incessant vomiting; and, generally, to remove the morbid irritability of that organ.

The bark of the officinal cinchona has been thought too slow in its operation to effect any change in the early movements of this disease, when severe; but after the first danger has been over, that and similar remedies have been employed with some benefit. But preparations of iron* have appeared to one gentleman to produce a better effect during convalescence than cinchona.

In some cases when apparently grown desperate, one gentleman found the warm bath a remedy of the highest value.

Preparations of quicksilver, particularly the submuriate, have been exhibited in this disease in the same manner, as they are given in this country in various other acute diseases. They have been more or less employed by various physicians; but particularly by a gentleman at Worcester. Other articles, such as have been mentioned, were also administered by this gentleman; but where life was not immediately threatened these preparations were

* This gentleman gave Griffith's myrrh mixture.

more particularly relied on. His mode has been to "administer diligently" from the beginning submuriate of quicksilver combined with camphor and ipecacuanha, and with so much opium as to prevent any powerful cathartic effects from the medicine. This mode has been pursued until a slight affection of the salivary system has been produced. The success attending this practice certainly was not exceeded by that of any other; and, while pursuing it, the very liberal use of cordials has not commonly been found necessary.

The committee have now reported every thing of importance relative to the disease lately epidemic in the county of Worcester and elsewhere within this commonwealth, so far as they have been able to obtain information on that subject. They will here add some brief notices

RESPECTING THE SAME DISEASE IN OTHER PLACES.

The appearance of this disease in the county of Worcester was not the commencement of its recent prevalence in our country. It is obviously the same which occurred in Medfield in 1806, of which an account was published among the *medical papers* of the society. It is unnecessary to recite the description there given.

Since the month of March 1807 the same disease has been epidemic in some parts of the state of Connecticut. In that month "it appeared in the city

of Hartford, and soon after in the town of Windsor. From that time to the present it has made it appearance at various times and in various places in the counties of Hartford and Litchfield. Cases have occurred in almost every month of the year ; but it has generally been most prevalent in the last winter and the spring months. We are not sensible of any variation in the seasons sufficient to have given rise to this new form of disease. The winters preceding the springs of 1806—7, when the disease first appeared, had been, as usual of late years, open and mild. The winter of 1808—9 was unusually severe. The local situations of the towns, in which the disease has been most prevalent, are various. While some of them are situated upon the borders of rivulets, and intersected by small streams never known to emit unhealthy vapours ; others are placed upon high hills and bleak ridges, and have been ranked among the most healthy in New England.*" It appears that this disease has exhibited in Connecticut considerable variety of character in different places and in different years.

It would be interesting to notice all the circumstances observed there which have not been remarked in this state. But this report will not give room for such notices.

* An *inaugural dissertation* on the disease termed petechial, or spotted fever, by Nathan Strong, jun. of Hartford Printed by Peter B. Gleason, 1810. The committee have derived their information respecting this epidemic in Connecticut from this dissertation, from a paper by Dr. Samuel Woodward, published in the New York Medical Repository, and from the private letters of respectable physicians in that state.

This disease is said to have prevailed during the present season in some parts of the states of New-York and Vermont and of the province of Upper Canada. It is reported that in these two last mentioned places symptoms of pneumonic affection have in many cases attended the disease. The committee have not yet been able to obtain satisfactory information from those quarters.

ON THE NAME AND CHARACTER OF THIS DISEASE.

The committee now beg leave to make some remarks on the name and character of the disease, which is the subject of their report.

This disease has been called spotted or petechial* fever. The name has been considered improper by most medical men, who have had occasion to remark upon the subject. It is however true that to similar epidemics, that is to epidemic fevers resembling this in the appearance of petechiae, the name of petechial fever has been given. Two opinions have been maintained on this head. The one that the petechiae are primary, or essential to the

* It is conjectured by Hoffman and others that this term is derived from the Italian word *pedechio*. But Burserius suggests that it may be derived from *pestis*, because these spots were first noticed in the plague. Burserius had traced back the history of these spots in Italy only to Fracastorius. But his suggestion derives considerable force from this circumstance ; that Ingrassia, who, according to Willan, noticed these spots in Italy a hundred years before Fracastorius, and probably before any one else, called them *pesticias*. *Willan* on cutaneous diseases, Vol. i. p. 470.

disease in the same manner as the eruptions in small pox and measles to the diseases, which bear their names. The other opinion is that they are secondary, or symptomatic; that they may or may not occur in various diseases, and that they are produced in consequence of some peculiar state, into which the system is brought not by any specific actions, but by actions common to various diseases.

The first opinion is adopted by Burserius, one of the most industrious and learned of compilers. He discusses the subject very fully,* and states the reasons for his opinion. Of these the principal are, I. That, when petechiae prevail epidemically in any place, they are found on many persons without fever or any other preceding disease. II. That the disease has a great tendency to the skin, so that although in a few persons who have the fever they do not appear, yet that they do in the great majority of instances. III. That the fever has a great variety of character so that the petechiae cannot be supposed to depend on the fever, but on the contrary the fever on the petechiae. IV. That the petechiae appear at various periods of the disease. V. That the eruption when perfect in its character gives relief, and "that in consequence of it alone, without any other sensible excretion, the disease is entirely resolved."

* Institutions of Medicine translated by Brown—Vol. iii. p. 226. Chapter on the Petechiae or petechial disease. His arguments are not here stated at large; but the most important parts of them are given. See the work.

The committee have stated the opinion and reasons of Burserius, because they have not found any other author, who so decidedly adopts the first opinion, and engages so fully in its support as he does.

In answer to his first reason it may be stated that, although he quotes several writers in its support, the circumstance he mentions has not been noticed by many, who are considered the most eminent practical writers. That however petechiae may have appeared at those times without fever will not be denied, since they often appear at other times without fever, or certainly without any considerable fever. Such petechiae are described by the very accurate Willan ;* but he does not remark that they occur more frequently while fevers are epidemic which are accompanied by petechiae. So far as is known to the committee petechiae without fever have not been seen here during the late epidemic.

In answer to the second it is the remark of a large proportion of practical writers that petechiae do not appear in nearly all the cases of those epidemics in which they are noticed. It is also remarked by most of these writers that the frequency of their appearance depends very much upon the treatment of the disease. Both these remarks appear to be confirmed by Willan.†

The third reason or argument it is obvious may be stated with equal force on the other side ; inas-

* On cutaneous diseases Vol. i. p. 453. and following.

† On purpura contagiosa.

much as petechiæ appear in fevers of a great variety of character. From various considerations we do not believe it can have any, certainly not much weight on either side; but if any, the less in favour of the opinion of Burserius when taken in connection with his fourth reason. For by this it appears not only that the constitutional affection has not any peculiar character, but that the period, at which the spots appear, is exceedingly variable and uncertain. Although this may be true in some degree as to small-pox, measles, &c. it is not true of them at all in the same extent as Burserius states it to be with respect to petechiæ. Petechiæ may appear from the first to the eleventh day of the disease, and even later.

The fact which he states in his fifth and last reason is expressly denied by most practical writers on this subject, whom the committee have had an opportunity to consult.

Sennertus states that petechiæ are rarely critical; or rarely appear at the time of the crisis; but avers that they are commonly symptomatic. He believed that petechiæ belong to malignant fevers.* Riverius also states that they are sometimes critical, sometimes symptomatic†; but does not say which character they most frequently bear. Burserius however makes a distinction, similar to that we have stated, between those which are primary and

* "Febres petechiales ad malignas pertineant." Opera—Vol. 2. p. 200. Lugduni 1650. His use of the term malignant may be learnt in his works—and will be noticed in a subsequent part of this report.

† Opera p. 450. Lugduni 1679.

those which are critical; for he considers both the critical and symptomatic, secondary; and agreeably to this distinction it is obvious that neither Sennertus nor Riverius consider petechiæ in any case, as he does, primary.

Sydenham certainly did not know the petechial fever, as a specific disease; and Bellini,[1] Fr. Hoffman,[2] Lientand,[3] Stoll,[4] Cullen,[5] Selle[6] and many later writers of good reputation,[7] who have spoken of petechiæ, consider them not only as secondary, but mostly as symptomatic. Willan does not expressly discuss this question, as the nature of his work does not seem to require it; but his opinion very obviously is that petechiæ are only symptomatic in the fevers in which they occur. He treats it as a point not contested, although he refers to Burserius.[8]

As regards the epidemic under our consideration the committee have adopted the second opinion stat-

1 De urinis et pulsibus, de febribus, &c. Lugduni 1717.

2 Hoffman treats of the true petechial fevers; but he leaves no doubt as to his opinion in this point. "Exanthemata veteres generali denominatione has dicunt maculas.——Ab aliis autem exanthematibus praeter figuram in eo discrepant, quod non modo sine omni ardore, sine pruritu, cutis elevatione, asperitate et exulceratione prodeant, sed et ut plurimum sine levamine." Med. Rat. Syst. Vol. 4 p. 258. Venet. 1730.—Itching has commonly been remarked here to accompany the eruption.

3 Synopsis universæpraxeos medicae. Vol. 1. p. 27. Paris. 1770.

4 Aphorismi de febribus p. 151. Paris. anno sec. Reipub Gall.

5 Genera morborum. Also First Lines of the Practice of Physic.

6 Rudimenta Pyretologiae methodicae pp. 177--8. Berolini 1789.

7 See Parr's Med. Dict. one of the latest works of authority which we have.

8 Willan states that petechiae have been noticed not only in acute, but in various chronic diseases. On cutaneous diseases, Vol. I. p. 471.

ed above, viz. that the petechiæ are secondary, for the following reasons. I. The cutaneous affections which occur in this disease are very various; such as red spots only, miliary eruptions, blotches, vesicles, pustules and rarely purpura or petechiæ.

II. In a very considerable proportion of cases there are not discovered either spots or eruptions. Indeed if we except some slight appearances on the inside of the elbow-joint, and in similar places, which very probably are to be attributed to sweating, such spots and eruptions are comparatively rare.

III. These spots and eruptions appear at very uncertain periods of the disease, and are of very uncertain duration.

IV. Although in some instances it has been remarked that relief accompanied the appearance of these spots and eruptions, this has not been noticed by the majority of those conversant with the disease.

It seems however to be true that in this disease there has been a tendency to increased action in the skin; which is evinced by the sweats,* by the various spots and eruptions, and by the itching. This last has very often taken place at the crisis; and in general an increased and free action of the cutaneous vessels has been attended with relief to the internal and more noble organs.

* Although the sweats may not have occurred spontaneously, yet in many cases when excited they have very readily become profuse.

In confirmation of the opinion we have adopted it may be added that in Connecticut "these spots, which in 1806–7 marked almost every case, in 1808–9 were rarely observed."*

What is this disease? To this question the committee feel themselves bound to reply; this they attempt with diffidence.

In this disease are discovered the symptoms of fever; febris of Cullen; fever as described by Dr. George Fordyce.† These symptoms are disproportionate in different parts of the system; and generally are seen most violent in the animal system; or in the brain and its dependant organs.‡ These symptoms are also said to be irregular in their course and order; by which is meant that their course and order are neither the same in all the subjects of the disease, nor the same as in ordinary fevers.

To these remarks may be added that, agreeably to the statement heretofore given, there exists in this disease inflammation of the internal organs, particularly on the membranes, and especially within the cranium; in the severe cases of the disease always within that cavity. Occasionally inflammation is also

* Strong's dissertation, p. 11.—That the disease there was the same which has occurred here will not be doubted on comparing our description with Strong's. We may remark that our's is drawn entirely from those of personal observers, and, though much like his, is not copied from it in any particular. This remark we make that more confidence may be placed in the similarity which is noticed in the disease.

† Dissertations on fever.

‡ See note p. 129.

found on the membrane covering the heart, and lining the pericardium; and less frequently on the pleura.

General inflammation combined with fever is noticed by Fordyce, and he describes the symptoms attending such combination. The principal symptom he mentions, as showing the existence of inflammation under these circumstances, is hardness of the pulse; to which however he adds that blood drawn under proper precautions* is covered with a buff, or a coat of coagulable lymph without red particles.

Hardness of the pulse and this appearance of the blood have not commonly been noticed in this disease; particularly not in those persons, whose bodies have been examined after death. We may therefore infer that a combination of fever and inflammation, such as Fordyce has described, has not commonly existed in this disease.

The symptoms will perhaps authorize an opinion that the inflammation is erysipelatous.† The appearances on examination after death do not disagree with this opinion. They do in some instances afford to it a strong confirmation. The substance of the diseased parts has not been found thickened, or carnified; nor do the inflamed surfaces exhibit a bright colour. The exudations are coagulable lymph, serous and purulent fluids. The lymph is not, as in phlegmonous inflammation, white and semitrans-

* The committee do not think it necessary to mention here these precautions, nor the explanation well known of this appearance called buff.

† Several of our correspondents have compared this disease to *cynanche maligna*, in which the inflammation is erysipelatous; and this comparison they have made without appearing to have those views of the character of the disease which we now present.

parent; but approaches to pus both in colour and consistence. In case XI. in the thorax were exhibited all the circumstances here described. Now we are told by Mr. Hunter that when erysipelatous inflammation occurs in circumscribed cavities "it hardly produces adhesions, and when it suppurates the suppuration takes place first."* In confirmation it may be added that, when external inflammations occur in this disease, they are erysipelatous; at least in most such cases.

The following then may be stated as general inferences. *This disease is fever combined with internal inflammation; and the inflammation is commonly erysipelatous.* Yet this character of the inflammation applies to individual cases more or less perfectly. In some recent cases especially the inflammation has approached more nearly to the phlegmonous; and perhaps in none is it purely erysipelatous. It is frequently of a character intermediate between the two.

It is further to be remarked that this inflammation has been most constantly found within the cranium. Is inflammation in this cavity common to all cases of fever? This opinion has been entertained by some practitioners; and it has of late been particularly supported by two teachers of medicine.† The positive evidence that such inflam-

* On the blood, inflammation, &c. Vol. I. p. 232. Philadelphia edit. 1796. See the whole section.

† Dr. Ploucquet, Professor of medicine in the university of Tubingen; and Dr. Clutterbuck, Lecturer in London. See Clutterbuck on fever; and for the doctrines of Ploucquet see Beddoes on fever as connected with inflammation.

mation has often been found to have existed in cases of fever is very considerable. But the evidence that such inflammation is often wanting is irresistible.* It appears that inflammation has often been found in the other great cavities in subjects dead of fever, and not at the same time within the cranium. Sometimes it is found in one cavity only; sometimes in two of them at once, and at other times in all three. We well know that inflammation is often seen externally during fever. But in many cases of fever there has not been discovered any inflammation either during life, or after death. It is therefore proper to infer that fever, in the sense in which we use the term, is not dependent on inflammation. When the two diseases exist together they are to be considered as in combination, without having any necessary dependence on each other.

We are now led to this question. Have those fevers in which such inflammations occur been distinguished by any peculiar character, so as to be specially denominated by professors of medicine? The committee believe that this question may be answered in the affirmative, and that the consideration of it will not be useless.

By inverting the terms we shall find an answer in an observation made by Baglivi. "Quae nobis videntur malignae a viscerum phlegmone aut erysipelatode fiunt."† This is the sum of a doctrine,

* See Beddoes' researches.

† Opera—p. 51.

which subsequent observations and researches appear to have confirmed.

The term *malignant* has been very loosely applied; and its use has been justly reprobated by Sydenham and many others. Yet there is one description of fevers, to which it has been more peculiarly appropriated. It is true that the best writers are very often confused in the endeavour to distinguish pestilential, putrid and malignant fevers. To engage in the consideration of all their distinctions and all their confusion would lead the committee too far from their object. They believe however it will be useful, in order to determine the true character of the epidemic under their consideration, and to compare it with diseases heretofore described, to point out those symptoms which have been considered evidences of malignity in fevers. They are the following:

I. Great disproportion in the violence of the symptoms, compared with each other.

II. Some peculiarity in the character of the symptoms when compared with those called by the same name, as they occur in ordinary diseases.

III. Remarkable imbecility, and prostration of all the powers of the body, or of certain of them, without any manifest cause; occurring at the very commencement of the disease, or after it has continued a few days with mild symptoms.

IV. Pains in any or every part of the body, sometimes fixed, but often shifting; in the limbs

severe, as if they had been bruised or broken; with tossing and twisting.

V. Extreme pain in the head; the greatest solicitude and perturbation of mind, watching and delirium; or stupor, coma and lethargy. Imagination very much disturbed and memory weakened.

VI. The countenance very much altered, losing its usual spirit and expression; sometimes entirely natural. Face often livid and leaden coloured.

VII. Eyes red, or dull and cloudy; dimness of sight and blindness. Ringing and hissing in the ears; deafness. Taste and smell depraved.

VIII. Tongue rough, dry and dark; mouth bitter; sometimes with insatiable thirst, sometimes without any.

IX. Pulse frequent, small, weak; even in beginning extremely small and frequent;* variable and intermittent.

X. Heat sometimes great, but oftener less than in other febrile affections. Extremities often very cold.

XI. Urine similar to that in health, especially in the first days of the disease; sometimes thin, without sediment; or if there be any sediment it is often dark coloured, more like an excrementitious substance than like the usual sediment.

XII. Matters discharged from the stomach and bowels often livid, black or green, or otherwise unnatural.

* Est etiam interdum in hujus febris initio pulsus formicanti similis, minimus et frequentissimus. Sennertus.

XIII. Scanty and frequent sweats about the forehead and neck only; sometimes profuse over the whole body.

XIV. Red, livid, ash-coloured and black spots on the neck, back, breast, arms and legs; various pustules; carbuncles, parotids and buboes, which last do not readily suppurate.

This description is taken from the works of Sennertus* and Riverius, medical writers of distinguished reputation in the sixteenth and seventeenth centuries. Subsequent writers agree in the same, especially Bellini and Fred. Hoffman. One character however which they all give to this fever is that it is contagious. In this respect certainly our epidemic does not accord with their description; but it is well known how imperfectly this subject of contagion has been understood; and indeed how imperfectly it is understood by many writers at the present day.

The committee are unwilling to multiply references any farther than is necessary to establish the character of those fevers which have been most distinctly considered as malignant. This character does not seem to have been clearly distinguished by many modern writers. It has however been particularly recognized by Selle in his Rudimenta Pyretologiae Methodicae; and perhaps more distinctly

* Sennertus terminates his description in these words. Et ut haec concludamus, nihil ferè mali est, quod non interdum in hisce febribus appareat; ac quò magis extrà omnia tuta apparent, eò magis intus omnia sunt turbata et mutata. Op. Vol. 2. p. 185.

by Pinel. The former comprehends fevers of this description under an order in which he denominates them *febres atactae;* the latter adopting the same term calls them in his own language *fievres ataxiques ou malignes.* These are comprehended in his nosological system under the fifth order of primitive fevers. The epithet which Selle substituted for malignant, and which is adopted by the French professor, expresses that the leading character of the diseases under that order is irregularity. One short description of ataxic fevers is this; "fevers distinguished by anomalous and irregular affections of the nervous system, occasioned by any cause either moral or physical which affects the nervous principle."* Another is the following; "The true character of the fevers of this order is to present a continual aberration and perversion of the sensibility, which appears at one time destroyed, at another exalted to the highest degree; and of which the alteration is manifested by nervous symptoms, that vary incessantly, succeed each other and alternate without any fixed order, and proceed in a manner the most incoherent."†

The committee will not engage the attention of the counsellors in inquiring to which of the genera

* Dictionnaire de medecine par—Jos. Capuron.

† This description is taken from a note by Renauldin, in his translation from the German to the French of Dressing's treatise upon diagnostics. p. 21. The committee regret the impossibility of procuring Pinel's nosography, where no doubt they would find his definition exactly laid down. They have acquired the knowledge of his system only from his *medecine clinique*, and from the writings of some of his pupils.

of Pinel's order of ataxic fevers our epidemic belongs; whether all the individual cases may be distributed among those genera, or whether a new genus must be constituted. They have been led incidentally into some nosological inquiries, or into a consideration of names; but these inquiries and considerations have not been their ultimate object. This object has been to show by what symptoms the disease called *malignant fever* has been known; and, although diseases have many times been called malignant without proper discrimination, that the epithet has by some of the best practitioners been appropriated to those of a certain description.

It appears then that the leading circumstances, which distinguish such fevers, are the following; viz. great prostration of strength; affections of all those functions belonging to, or immediately connected with the brain; and great irregularity in the symptoms, their course and order.

The committee proceed now to inquire whether experience has confirmed the observation of Baglivi; that is, whether it has been found that inflammation of the internal viscera is combined with fever in those cases, where fever has the characters above mentioned.

The appearances after death in subjects of fever have been much more regarded by the Germans and French, than among the English and Americans. But the works of the writers on the continent of Europe are not very commonly found in this coun-

try; and many of them, which might be consulted with great advantage, are not in our hands. For this however we are in some measure compensated by two recent publications in England, to which we have already referred; an inquiry into the seat and nature of fever by Clutterbuck, and researches concerning fever as connected with inflammation by Beddoes. The former of these writers, endeavouring to show that fever was dependent on inflammation within the cranium, gives us many observations in confirmation of this opinion. Beddoes has many more observations industriously collected from very extensive reading, in which he shows inflammation in various parts of the body to be combined with fever; and also others in which no such inflammation was discovered. Neither of these writers certainly had any idea of shewing that it is especially in fever of the description called malignant that such inflammations are found. But it is impossible to look into their works with this idea in the mind, and not be struck with the evidences, which are furnished by them of its truth. In some cases of such inflammation the nature of the disease is not mentioned; but wherever it is mentioned, or wherever the history of the disease is given, it is found to belong to Pinel's order of fievres ataxiques ou malignes. The committee might here introduce the various evidences to which they refer; but this would be to extract the most valuable parts of the books they have mentioned. To those books therefore they beg to

call the attention of the counsellors.* In addition to the evidence furnished by those writers they will add only the following. This is such as tends to

* See Clutterbuck on fever Vol. I. p. 168.—The following remarks may be made on his references.

Boneti Sepulchret. Lib. IV. Sect. i. Obs. 34. the cases are not sufficiently detailed to determine the character of the diseases. Obs. 44. first case is somewhat detailed ;—it is intermittent, and certainly ataxic. The head was diseased. Second case is taken from the same author, *Piso*. He says the symptoms were the same, and so were the appearances on dissection.

Morgagni de causis et sedibus—Epis. 4. 6, 7, 8. are referred to generally as containing cases of fever, in which the brain or its membranes were diseased.

Epist. iv. art. 6. 9. 26. are cases of fever clearly ataxic.—Morgagni expressly mentions respecting the 9th, that it was malignant. In each the brain was diseased, although other organs were more so in the 26th. Epist. vi. art. 2 & 3. and 8. two cases evidently ataxic ; brain diseased. Respecting the case in art. 8. Morgagni remarks that the inflammation was erysipelatous ; the appearances were almost precisely such, as have been discovered in the cases here. Same epistle art. 4 and 6. contain cases probably ataxic. In the one was found sanious matter in the tympanum—in the other brain diseased. Epist. vii. art. 2. ataxic fever ; brain diseased. Other cases in the same epistles might be noticed, but they are not clearly stated so as to shew what was the kind of fever, although the brain was found diseased. There are also here and elsewhere cases of ataxic fever, in which other viscera were found diseased.

That this note may not be too long we only add that Clutterbuck refers also to Lieutand, Werlhoff, Mangetus, Haller, Pringle, Donald Monro, Vogel, Chambon, Baillie, and Jackson, as stating that the brain has been frequently found diseased in those who have died of fever ; but it appears that four of them confine this remark expressly to malignant fever ; one to petechial fever, one to typhus, and one to yellow fever, probably all of them ataxic.

In a very large proportion of the cases collected by Beddoes in which the brain was found diseased, the fevers were ataxic. He also gives some cases of similar fevers in which other viscera were diseased.

shew that in malignant fever inflammation occurs in the parts within the cranium.

Pinel in his *medicine clinique* gives twenty-eight cases of ataxic fever, and forty-nine cases of fevers of different characters. Nineteen cases of ataxic fever terminated fatally and fourteen of the bodies were examined. Nine of the other cases were fatal and five were examined. Of the fourteen in every one there were diseased appearances within the cranium precisely similar to those discovered here; of the five not one had similar appearances, nor any other appearances of disease within the cranium. This too conforms to Pinel's general remarks on the same subject; and is supported by further evidence in a dissertation "sur les fievres ataxique sporadique et adynamique continue, &c. par. A. B. Dessains," a pupil of Pinel. In four cases, the only ones examined, the appearances corresponded exactly with our's. The account, which is published among the papers of the Society of a fever at Geneva, shews that that disease was the same which has prevailed here. It is there said that on examination after death the blood vessels of the brain were turgid; but that in other respects both the brain and the other viscera were found natural. Beddoes gives an abstract of another account of the same epidemic by Dr. Matthè. According to his account the same congestion only was found in three children, who died of this disease in less than twenty-four hours. But he reports also that in an adult, who died on the sixth day, the following changes had occurred in the brain;

viz. "vessels of the meninges strongly infarcted, a bloody-gelatinous fluid spread over the whole brain, liquid in the ventricles, choroid plexus deep red; at the posterior part of the lobes and interiorly puriform matter without alteration of the texture of the brain; the same at the thalamus nervorum opticorum and extending along these nerves and an inch into the cavity of the spine; cerebellum very soft."

At Medfield also there was noticed, in three cases only, turgescence of the cerebral vessels; but in two other cases, more obvious proofs of disease within the cranium were discovered. In like manner in case XIV. which occurred at Charlestown, turgescence of the veins only was discovered on examining the brain. But in this case, in those similar at Medfield, and in most of those at Geneva, the disease had not continued twenty-four hours. Now it is not straining the facts too far, when the whole are taken in connection to believe that in these cases inflammation had commenced, although there had not yet occurred any such organic effects as to demonstrate this perfectly.

THERE is indeed another explanation of the state of some, who have died thus suddenly and in whom there has been found only distension of the cerebral vessels; this is that they are apoplectic, or die from the sudden pressure on the brain. The appearances during life in some of these cases accord with this explanation. The symptoms in case XIV. and in many others, were very strikingly similar to those of apoplexy.

From Pinel's remarks inflammation in the brain has been found in all cases of ataxic fever; and the other viscera have been inflamed in fevers, which were not of that description. This certainly has not yet been made to appear; but the committee are disposed to consider this doctrine as not materially incorrect.

If some cases occur which come under the description of ataxic fever, and in which not the brain but the other viscera are found to have been inflamed, an explanation may be found by reference to the laws of sympathy. In cases of this description the inflammation has more commonly been found in the abdominal than in the thoracic viscera; and it is well known that morbid sympathy is more commonly remarked between those viscera and the brain than between the thoracic viscera and the same organ. But the committee do not wish to urge this doctrine too far. It is certain that in a vast many cases of ataxic fever the brain has been found diseased; and on the other hand that where the brain has been found diseased the fever has commonly been ataxic. But the same connexion sometimes, although much less generally, has been found between fever of this description and local affections within the thorax and abdomen. The subject must be considered as under investigation, but certainly not yet made perfectly clear. To elucidate it are wanting numerous accurate observations on the living and on the dead. Observations sufficiently numerous can be made only by the joint labours of many. But let every one recol-

lect how many valuable observations already made are lost to us, and what is worse, serve oftentimes only to perplex us, because they have been recorded imperfectly and inaccurately.

The application of the doctrines, which have been stated, to the epidemic under our consideration is only general. In examining individual cases we find great variety of character. It is probable that there have occurred cases of pure fever, synochus and typhus, both mitior and gravior; cases of fever complicated with inflammation of the brain; and cases of such inflammation alone, not combined with fever. Perhaps we should add that in some cases the facts shew only a great turgescence of the cerebral vessels, not accompanied with inflammation. The inflammation also has varied in its character, and has been phlegmonous, erysipelatous, or frequently intermediate, the erysipelatous character predominating.

It probably also happens that in some cases fever terminates in local inflammation; and perhaps inflammation in fever. Undoubtedly in some cases the one disease commences alone, and the other supervenes and combines with the first.—This is very common in malignant epidemic fevers; and hence the patient does not at first, perhaps not for some days, appear to be affected with a severe disease; when suddenly there ensues great prostration of strength with symptoms of cerebral affection.

Intermittent fevers are not prevalent among us; and probably owing to that circumstance we attend less to remissions in fever than physicians in

most other climates, who are in the habit of distinguishing the paroxysms of fever. The committee have not any information respecting the general character of the disease under consideration in these respects. It would seem however from some cases communicated to us and from casual remarks that it has remissions, although they may not be of any regular type; in some instances there is reason to suspect that these remissions have amounted almost to intermissions. Where the fever has had periods of remission or intermission, these may have been less observed because the symptoms of inflammation have continued.*

CAUSES.

Respecting the predisposing cause of this disease the committee cannot offer any remarks that are satisfactory to themselves. The following circumstances only we know respecting it; viz. that it has been in operation since the winter of 1806, to the present time; that its operation extends over a very considerable portion of country; that after ceasing to operate in one part of the country it commences its action in another; that the portions of country in which it produces its effects are very various as to soil and elevation; that the seasons in which it is produced have been of different characters as to temperature and moisture; and that it has been most powerful from midwinter till the latter part of spring. The suggestions that bad grain has been

* See Fordyce on irregular intermittents.

in any measure influential in producing this disease are not corroborated by any evidence before the committee. Shall we with Sydenham confess our ignorance, by referring the predisposing cause to some secret peculiarity in the constitution of the atmosphere?

Something more is known respecting the exciting causes. These are the same which operate in all cases, when epidemics prevail which are not contagious. Errors in diet, exposure to sudden changes of temperature, or to damp air, fatigue, watching, anxiety of mind, and in short any cause, which in a time of health will produce a slight derangement in the system, will, during the existence of an epidemic which is not contagious, operate as an exciting cause. In other words the predisposing cause affects all, or a certain portion of, the members of the community in such a way, as that whenever the ordinary functions of the system are interrupted, in any considerable degree, such persons become affected with the prevailing disease. It is in consequence of fatigue and anxiety that the attendants on the sick often become affected with the prevailing epidemic; but in such cases the disease is often thought to be produced by contagion.*

The committee do not make these remarks merely in conformity to general principles entertained by them, although that conformity exists; they are founded on the observations of their correspondents.

* See Adams's Inquiry into the laws of Epidemics.

The committee have gone as far in analyzing the disease, as facts will warrant them. They will not add any thing respecting the proximate cause; for that would engage them in the investigation of the proximate causes of fever and inflammation, subjects which have more frequently been discussed, than illustrated.

Respecting the causes of symptoms they may have occasion to make some remarks in considering the method of treatment; they wish not to make any, which have not for their object immediate practical utility.

METHOD OF TREATMENT.

A few remarks will be made introductory to the indications of cure; these will be stated, and the means of fulfilling them briefly pointed out; and then the different remedies to be employed and the circumstances, which should regulate their employment, will be more particularly considered.

In some cases of this fever the immediate destruction of life is threatened in the first stage, in consequence of pressure upon the brain. This pressure is produced by congestion of blood in that part.

In other cases life is threatened by inflammation of the membranes covering the brain and lining its cavities, accompanied by a more slight congestion. This inflammation may destroy life in consequence of the irritation communicated to the whole system by the affection of so important an organ; but more

commonly by the effusion, which it occasions, producing pressure on the brain.

These dangers are increased by the combination of fever with inflammation, by which the system is rendered less able to produce a natural cure, and which embarrasses the physician in adapting remedies to the disease. There is in addition some risk of life from the fever alone; but this is not considerable.

In a large proportion of cases the dangers, which have been described, do not exist at all, or only in a slight degree.

When congestion in the brain exists, the first indication is to diminish the quantity of blood in that part. This is to be effected if possible by inducing contraction in the vessels of the head, and dilatation in those of the trunk and extremities. For this purpose cold applications are to be made to the head, and those which are warm and moist to the body; and at the same time, if there be great depression of strength, very mild cordials may be administered. Where however the pressure on the brain is very great, blood should be drawn from the jugular vein.

When there exists inflammation within the cranium, without any considerable pressure, the first indication is to discuss the inflammation, so as to leave the patient affected with simple fever. This indication it is difficult to fulfil; for although we separate the diseases in our own minds, and although in a certain sense they have distinct existences, yet they are combined in one and the same system, and

probably are modified each of them by the other. We may indeed sometimes relieve both at once, but we may also, while we relieve the one, increase the danger of the other. To fulfil this indication the same remedies may be adopted, as stated above to relieve congestion; and, in addition, the forehead, the back of the neck, and even the whole head should be blistered. Bleeding however should not be readily practised in this case, unless the inflammation approach the phlegmonous character; nor will it often be admissible in this case to use cordials. Preparations of quicksilver, which will also be useful in attending to other indications, will be beneficial with regard to this.

The second indication is to interrupt those actions which belong to the fever, so as to restore the actions of health. This indication will oftentimes be fulfilled by the treatment already proposed. In addition, preparations of quicksilver may be exhibited, until an effect is produced on the mouth. In some cases emetics may assist in attaining the purpose here proposed.

The third indication is to support the strength of the patient while going through the disease. To which end all evacuations should be avoided, which are not absolutely necessary, unless there is good reason to believe, that the disease may thereby be cured, or materially diminished. Also such nourishment should be given as the stomach will bear with ease.

The fourth indication is, when the disease has subsided, to restore vigour to the system exhausted by the fatigue of unusual exertions, by unusual evacuations and by want of nourishment. This indication is to be complied with by administering tonics and nourishment; at the same time all exertions, which cannot very easily be borne, should be avoided. Each of the remedies mentioned, and such others as may be deemed important will now be separately considered.

EVACUATIONS.

It has been the practice of almost all physicians to make some evacuations from the body, in the commencement of acute diseases. It would seem that experience must have been in favour of this practice, or it would not have been so universally adopted. As to the mode of evacuation and the extent to which it should be carried, there are no doubt various opinions. But in ataxic or malignant fever, many physicians have thought all evacuations injurious, while others have advised them to be very profuse. It is certainly true that evacuations must not be wantonly or indiscriminately prescribed in this disease; but when they are made for certain definite objects, and regulated in their extent by a regard to those objects, they may be highly beneficial. The objects to be had in view will be stated under the heads of the particular evacuations.

BLOOD-LETTING.

The effects of this evacuation are not always the same, and the mode in which it operates is not well agreed upon. It has been supposed to lessen the actions by removing a stimulus. By taking away the stimulus of distention, when that exists, it may operate generally to lessen action. But when the vessels do not suffer greater distention, than they bear with ease, taking away blood from them has been supposed to increase their action. The explanation which has been given of this effect will be stated.

The blood vessels always contract to their contents, so that they are always precisely full. Their elasticity constantly tends to make them enlarge their capacity,* and their contraction is produced by their muscular power. When blood is drawn from the vessels, this power is exercised at the expense of the rest of the system. The effects vary somewhat according to the mode of drawing blood. If it be drawn from a large vessel, in a full stream, the vessels are obliged to act suddenly; whereas if the blood flow from a small vessel, and slowly, the contraction of the vessels is more gradual, and an effect more lasting, but less powerful and immediate, is produced. The consequence of this exertion of the blood vessels is to diminish the strength of the system, and lessen the force of action in other parts of the

* Perhaps this is not true as to particular vessels when very extraordinarily distended; but it is true as to the blood vessels generally in any state in which they can all be at the same time; for they cannot all at one time be so extraordinarily distended; there is never sufficient blood in the body for this purpose. See Fordyce's practice of physic, part I. article *blood vessels*, for the doctrines here stated.

body; more especially in any portion of the sanguiferous system, which is undergoing inordinate action. Hence the effects of bleeding, when phlegmonous inflammation exists in any important part of the system.

When the vessels act feebly, when the pulse is small and frequent, blood-letting in general is not admissible upon the principles, which have been laid down. There is however at least one exception to this rule. If under these circumstances, as regards the action of the vessels generally, there exist a local plethora, or what has been called congestion in any part, letting blood from the vessels so affected may become necessary. This sometimes occurs in the vessels of the tunica conjunctiva, and by dividing them that part is relieved. When so small a quantity of blood is effused, as is necessary in this case, the system does not suffer from the loss, and is relieved by the removal of the local disease. But when it is a larger part and when larger vessels are affected in this way, the loss of the blood, which is drawn to relieve them, may produce too much weakness in the system. In this case the danger from the local affection, and from the loss of blood to the system must be carefully weighed; and it is only, when the former danger is great and imminent, that the evacuation can be authorized.

The committee beg indulgence while they consider more minutely the effects of congestion in the brain. It sometimes happens that a determination of blood takes place to the head from causes, which

the committee presume not to ascertain. The arteries going to the brain throw the blood upon that part faster, than it can be carried off by the veins; or the veins cease to carry off the blood as fast as usual, although the quantity which is brought be not unduly increased. In whichever way it happens, the vessels become so full, that they cannot contract with sufficient force to relieve themselves from the mass of blood which they contain. In consequence the brain suffers from pressure; its functions are more or less interrupted; the muscles of respiration, which are known by experiment to be influenced by the cerebral system, are partially paralyzed; the mechanical office, which belongs to them, is not performed; the lungs do not receive their usual supply of fresh air; the blood does not undergo its usual changes in the lungs from the action of the air; the left ventricle of the heart and the whole body is supplied with blood more or less nearly resembling that, which is ordinarily found only in the veins of the body and in the pulmonary arteries; every part of the body is in consequence weakened; and if relief be not shortly obtained, death ensues.* In proportion to the power of the cause these effects take place in a greater or less degree.

In circumstances such as have been described the patient lies comatose or convulsed; the respiration is distressed, stertorous as in apoplexy, or anxious, feeble and convulsive like that of an animal in

* See Bichat on life and death.

an exhausted receiver, the circulation is very imperfectly performed, the whole body is cold, more especially the extremities, the skin becomes grim, and livid, particularly in the face; or when the pressure is most sudden and violent the face swells and becomes almost black, and the respiration and whole appearance is like that of a person who is strangulated. (See case VIII.)

Under these circumstances, in proportion to the violence of the case, different remedies are applicable, for here "difference in degree constitutes difference in kind." When the pressure is great, if a blood vessel be opened, and evacuation do not relieve the pressure, it sinks the patient. The vessels, in the trunk and extremities, must contract to their contents, and by this exertion the little remaining strength of the system is exhausted. But if the pressure on the brain is relieved, the respiration becomes free, and the whole machine begins to perform its customary motions. The immediate danger is averted, the sensibility and irritability, which were almost lost, are now recovered, the circulations become more regular, and remedies can be applied to complete the cure. Whatever may be the strength of the system, it can better bear the removal of the superfluous blood in the head, than it can bear the interruption of its functions, arising from the pressure of that blood. The object is to take off that blood, which is superfluous in the head, without producing a sudden prostration in the system, before it has time to be benefited by the removal of the pres-

sure. Here the head and the other parts of the body are to be considered as in some measure disjointed. If a vein be opened in the arm, it will not relieve the head, except through the medium of the general circulation; and the heart and vessels will suffer in a large proportion to the benefit received, and for a few moments before any benefit is received. The effects during those moments may be fatal. If the quantity taken be not enough to give any relief, or if it be more than is necessary for relief, the injury to the system may be such as to produce death. But if a vein be opened, which immediately communicates with the cerebral vessels, such as the external jugular vein, the pressure is immediately removed from the head, and the general relief is such as to counteract all the evils of loss of blood to the system.

From the foregoing considerations, which have been stated as briefly as the nature and importance of the subject will admit, it appears that there may be two, and those very different states of the system in this disease, in which it may be proper to let blood. The first is when there is phlegmonous inflammation, or such as approaches nearly to that character, affecting the brain and its membranes. Here if the symptoms be not violent, other remedies may suffice; but if they are, if the pain in the head be severe, if the functions of the whole animal system be very much interrupted, and at the same time the skin be hot and the pulse hard, the case is dangerous; we have then to apprehend that such effects

will be produced within the cranium as will destroy life, before we can arrest the disease by other remedies. In this case, the violence of the inflammation must be reduced by bleeding. It is not comparatively very important from what part the blood is taken for this purpose. It would however be best to take it from the jugular vein, because that communicates immediately with the vessels of the part affected; and probably a given quantity of blood, drawn from that vein, would afford more relief than if drawn from the arm. When from any cause that vein cannot be opened, the operation may be performed on the temporal artery. From whatever vessel the blood is taken a large orifice should be made, that the effect may be as sudden as possible, so that a smaller quantity may suffice. Probably from ten to twenty ounces would be sufficient in most cases.

The second case, in which blood should be evacuated, is that which has already been described, in which the brain is suffering pressure from the fulness of its vessels. Here it is very important that the blood be drawn from the external jugular in preference to a vein in the arm, for reasons which have also been suggested. The orifice in this case also should be large, that the relief may be as immediate as possible. At the same time it is important to avoid producing faintness, that the general system may not suffer too much, before it has derived the benefits of the operation. Several attentions may prevent this effect. Cold applications should be made constantly to the head and face during the bleeding to excite contraction of the vessels in that

part, and thus supply blood to the rest of the system; those cordials, whose action is sudden and transient, should be administered at the same time if any faintness be perceived; and in this case the flow of blood should be stopped until the faintness has subsided; then if relief is not obtained, the evacuation should be continued.* With these precautions the blood should be allowed to flow until it is obvious that some relief is obtained. To maintain the advantage which has been thus procured, other remedies should be immediately employed, such as will shortly be noticed.

To adduce authorities in favour of blood-letting in this disease would be useless; for authorities may be quoted on both sides. Sydenham lamented the use of the word malignant, as descriptive of any species of fever, and said that it had occasioned more deaths than the sword. He believed that this slaughter was occasioned by the use of alexipharmics, which had been considered appropriate to malignant diseases, while evacuations were too much neglected. On the other hand, Huxham and many others thought that Sydenham was influenced by prejudice in transferring his practice in inflammatory diseases to those, which were malignant, and in which the strength of the system was prostrated by a secret cause. Perhaps their differences of opinion may be explained if that adopted by the committee be correct.

* It has not been very common here to open the external jugular vein, but the operation is very simple. The pressure is made by the thumb of the operator placed on the vein where it passes near the mastoid muscle just above the clavicle.

When the visceral inflammation is phlegmonous or nearly so, it is well agreed that bleeding may be very advantageously instituted. When it is purely erysipelatous, and in addition to the weakness produced by the fever, there occurs the peculiar prostration, which accompanies inflammation of this character, it may sometimes be necessary even to exhibit powerful cordials for a season, lest death should be produced by sudden faintness. But if this prostration be caused by great pressure on the brain, death must shortly ensue. Here it is not "a pack on the back" which must be removed; it is a pack on the head, which is not only too heavy to be borne, but whose pressure destroys in great measure those properties in the living system on which we operate to excite more vigorous action. In such a case it is not inconsistent to open the jugular vein, while we exhibit even the most powerful cordials.

In cases where it is not necessary or might be injurious to let blood from a large vein, the head may derive some relief from cupping or leeches. The former is the most expeditious mode of local bleeding, and is therefore preferable.

EMETICS.

Emetics are administered in the commencement of fever for two purposes. The one to produce an evacuation of any offensive substances in the stomach. The other to produce a strong impression on that organ, and in consequence of the sympathy between that and all other parts of the

system to effect a change in all the organic actions.* By this change the motions of the disease are interrupted. With both intentions they are often very advantageously employed. For the first purpose they should be employed in this disease, whenever the symptoms of offensive substances in the stomach are perceived. For the second they are too often inadequate, and the use of them for that purpose should be avoided, because they occupy important time which cannot be redeemed. It is however in proportion to the violence of the cerebral affection that emetics are contra-indicated. When this affection is slight, they may be useful for the second purpose mentioned, and they should be more readily exhibited, if they are at the same time in any degree indicated on account of the first. Such are the suggestions which the committee venture to offer on this head; but their opinions are not absolutely fixed, and they wish that they may be tested by clinical observations.

CATHARTICS.

Cathartics are either such as produce copious fluid discharges from the bowels; or such as occasion only a discharge of the fæces with comparatively very little fluid. In the first case the fluid is furnished from the liver and pancreas and from the intestinal mucus membrane. In this case a determi-

* For organic actions, or actions of the organic system see the divisions of Bichat before referred to. Generally the organic system comprehends all parts of the body except the brain and parts dependant on it as to functions.

nation of blood takes place to the abdominal vessels, or, those vessels in consequence of increased action receive more blood. In the second case perhaps the same effect takes place, but to an extent very much less. Those cathartics, which produce the effects first mentioned are called drastic, and purgative; those, which produce the second, are called laxatives and eccoprotics. Certain drastic cathartics, as particularly those which are resinous, increase the action of the abdominal vessels generally more than others, and also increase the action of the vessels over the whole body.

In most cases of this disease drastic cathartics cannot be employed with advantage. The general system is weakened by their operation much more than the head is relieved. An exception should be made however of those cases, in which the inflammation approaches the phlegmonous character, and in which the sanguiferous system is not yet overpowered in consequence of pressure on the head. In these cases drastic cathartics, combined with submuriate of quicksilver, may be exhibited; for here their effects are salutary in consequence both of their weakening the system generally, and thereby diminishing the violence of action, and of the determination of blood to the abdomen, by which it is diminished in the head. It is proposed to combine the submuriate with the drastic cathartics, on account of the good effects it may have on the whole system, at the same time that it assists in producing an effect on the bowels. It is also useful because it acts on

the whole canal from the stomach downwards, which effect is not so perfectly produced by most other cathartics. It does also assist in producing a determination of blood to the abdomen, and does not at the same time produce a sudden increase in the general actions of the sanguiferous system, as the resinous cathartics often do.

LAXATIVES may be more generally employed in this disease, for at all times the system is disturbed if fæces are allowed to continue in the intestines for any very unusual length of time; and the disease may invade the system at a moment, when it is already suffering under an incumbrance of this sort. If the bowels are costive, an enema should be administered on the first, or at farthest on the second day of the disease, and this more particularly, if the bowels make unavailing efforts to relieve themselves. When they are at the invasion as free as usual, medicines may be given, which will gradually promote their action; for they are very much disposed to be slow in their operations in this disease. For this purpose it is best to employ submuriate of quicksilver in small doses, frequently repeated, because that medicine will at the same time be producing other good effects on the whole system, as will be hereafter mentioned. Where bleeding is to be employed, both emetics and cathartics should be omitted until after that operation.

HEAT AND COLD.

The committee will not engage in the contested questions respecting the effects of hot and cold applications to the body; they do not hazard contradiction in asserting that great benefit may result from such applications. In this opinion they are supported by abundant experience; for they feel assured that in cases, which have terminated successfully, and in which none of these evacuations just now discussed, have been made, relief has been most commonly derived from such applications. Under this description of cold and hot applications the committee mean to include those remedies, which reduce the temperature although not cold themselves, such as *ether*, when allowed to evaporate from the surface; and those, which produce or retain heat, although not hot themselves, such as friction, and woollen coverings.

When the head is hot, and even whenever it is not cold on the surface, cold water, ice, and ether may be applied to it with great benefit. Whatever be the mode of operation, it is certain that such applications occasion a contraction of the blood vessels in the part, to which they are made; and in this case they cause the head to be freed from pressure, and the rest of the system to receive the blood, which it oftentimes wants. So far as such remedies produce an effect, they are far preferable to bleeding; as it is better to heal a diseased limb than to amputate it. When they are not competent to entire relief, they will very much assist both during and after blood-letting.

In a large proportion of the cases of this disease the temperature of the surface of the body, and particularly on the limbs, is reduced. In such cases, and even when the temperature of the body is natural, great advantage is derived from warm and moist applications to the surface. Such applications increase the fulness of the vessels of the skin; and as the extent is great, they operate powerfully in relieving the pressure of blood in the head. They also produce diaphoresis; and perhaps some benefit is obtained from this evacuation; but this effect, as it appears to the committee, is much less important than that above mentioned. The mode of making such applications has been described in stating the method of treatment which has very generally been adopted in the county of Worcester. One caution is however necessary; viz. that the surface be not so much heated, as to increase to undue violence the general actions of the sanguiferous system.—A pleasant warmth and a gentle moisture of the skin are sufficient. There is not any part of the treatment of ataxic or malignant fever, in which practitioners are so universally agreed, as in this of promoting diaphoresis. It is also agreed that the sweating should be continued for a considerable length of time, to obtain from it all the benefit it can afford. On this point there has perhaps been an extravagance in the opinions entertained. But no doubt gentle diaphoresis may be continued for twenty-four or even

for forty hours with advantage. It is necessary during this time, to watch the patient that he may not become too warm, and that he may not be too much exhausted. Profuse sweating is to be most carefully avoided.

VESICATION.

The utility of vesicating the head, or the parts near it, is very highly estimated by all, who have adopted this practice. To derive from it all the advantages it can afford, this practice should be instituted in the very earliest stage of the disease. In every case, where the symptoms of affection of the brain are of considerable violence, the head should be immediately shaved. This renders it more easy to abstract heat from the head, where that is necessary. When it is not, or when it has already been done, a larger or smaller portion of the head should be immediately vesicated. While cold applications are made to the head, the back of the neck, the forehead and temples may be vesicated. It is important to produce the vesication as speedily as possible; for this purpose the strong tincture of cantharides should be well rubbed upon the parts to be blistered until a very considerable redness is produced; the plaster of cantharides should then be applied, and the part should frequently be examined, lest in the tossing about of the patient the plaster be removed.

Advantage may be derived from blistering the extremities also, when the vascular action is feeble, and the skin cold.

Under this head may also be recommended *sinapisms* and *rubefacients* to the feet, and other parts of the extremities.

PREPARATIONS OF QUICKSILVER.

In reporting the mode of treatment, which has been adopted by their correspondents, the committee mentioned the use, which has been made of the submuriate of quicksilver. In cases where life is immediately threatened, this remedy cannot be relied on to avert the danger. But in cases of less severity, or where the most urgent symptoms are removed by other remedies, this is of great value. It may be exhibited in doses of one to three grains, once in two to six hours, until it produces an effect on the bowels ; the doses may then be diminished, or exhibited less frequently, and it may be combined with small doses of ipecacuanha and opium. In this manner it may be continued, until an effect is produced on the mouth. This effect should not be allowed to increase to any violence, but should be maintained in a very low degree, until all symptoms of disease have subsided.

The utility of this practice has been sufficiently tested by experiment. It is the same which is found useful in many other acute diseases. It need not be employed to the exclusion of any remedies, which

are immediate in their effects, and which the urgency of the case may require.

The committee presume that they should not promote the use of this remedy by discussing the mode, in which it gives relief. They consider it, when affecting the system, as an alterative ; an alterative not of the fluids of the body, but of the actions of the minima vascula. It is therefore directed to fulfil the second and third indications.

When the submuriate is not easily borne by the stomach, or when it is too slow in its effects, the ointment of quicksilver may be applied to the external surface of the body, and to the parts which have been vesicated. A drachm may be rubbed on the skin once in every three or four hours until sufficient effect is produced.

CORDIALS.

Under this name are comprehended those articles, of which the effects are immediate or nearly so, which produce warmth in the stomach and over the whole body, and which increase in force and frequency the actions of the heart and large vessels.

Respecting the utility of such articles in the disease under consideration there has been a division of opinion among practitioners of medicine. There is perhaps a popular bias in favour of their administration. Their effects are obvious, often comfortable for the moment, and, under certain circumstances, salutary. When liberally and indiscriminately administered in this disease, they are very injurious by

increasing the force with which the blood is thrown on the head, or other parts in which there exist either inflammation or congestion ; and they are injurious by suddenly increasing the heat and the vascular actions generally, and thus unnecessarily exhausting the energy of the system by imposing on it useless labour.

The very liberal use of cordials has been very fully tried during the last three years in Connecticut, and also during the early part of the spring in the county of Worcester. The committee have reason to believe, that a considerable proportion of the most judicious practitioners in those places are now fully convinced, that this practice is highly injurious. This is the case with some, who had adopted and for a time continued it with the most sanguine expectations of benefit, and probably with some of those, on whose communications our former statement was founded.

There are however occasions, on which cordials may be administered in this disease with advantage. At the time when the actions of the system are almost arrested in consequence of pressure on the brain, cordials may be required to keep the heart in motion. The patient is ready to faint, and if the actions cease for a moment death may ensue. At such a time we must not hesitate to follow the dictates of nature, and excite increased action at any hazard, until we can gain time to adopt more effectual measures. It is possible even that by cordials administered under such circumstances we may excite

the cerebral vessels to stronger contractions and thus relieve the brain; but the chance is much greater, that by the liberal exhibition of such articles we shall increase the flow to the head, while by distention we lessen the power of the vessels there to contract. In this way either sudden death, or effusions and more distant, but scarcely less certain injury is produced.

The careful exhibition of cordials may even be necessary at the very moment, while we are letting blood. However absurd this may appear to theorists, the practice is not inconsistent. An attempt has already been made to explain the necessity of it. In diseases much more slight we frequently apply heat to the feet, and abstract it from the head; a practice which except from habit would seem equally absurd.

In the late stages of this disease, when evacuations can no longer be made with advantage and when the energy of the system is very much exhausted, cordials may be useful. Here it is true they must be used without regard to quantity, and be measured only by effects. Yet care should be taken that those effects be not great. Action must indeed be maintained at any expense, for without action life will soon cease; but it must be remembered that life may be maintained by very feeble action, and that we defeat our own object, when we increase the action beyond the power to support it.

In all cases the mildest cordials competent should be employed. External applications, so far as they can be substituted for cordials, are always to be pre-

ferred. Tonics also are to be employed in preference, when it is not necessary to produce an immediate effect.

Under this head perhaps some remarks should be made on the use of opium. The committee will offer a few and those only which are practical. If the patient is cool, opium is useful in the early stage of the disease when attempting to produce diaphoresis; its property of producing this effect is well known. It is also useful at that time, when there is great morbid irritability with tossing about, whereby the benefit of other diaphoretics is prevented. The doses required for these purposes may sometimes be large; but in general they should be small and repeated until they produce the effects desired. The committee cannot restrain the apprehension that some of the evils attributed to this disease have been aggravated, if not sometimes produced, by the too liberal use of opium and ardent spirit. In cases of violent spasms, after blood-letting, large doses of opium are unequivocally necessary. (See case III.) Such cases are however rare.

TONICS.

The bark of the *officinal cinchona* may be administered as soon, as the immediate danger from pressure on the brain is removed, and any considerable remission of fever takes place. On this point the committee have not been able to learn sufficiently the results of experience in the late epidemic. By some respectable physicians the *cinchona* has not

been thought useful. In similar diseases the practice recommended has been found very beneficial. One very respectable physician thought chalybeates particularly serviceable under the circumstances described. Another who has distinguished himself by his judicious treatment of this disease, states that the preparation, commonly called Fowler's solution of arsenic, has fulfilled very perfectly the indications under the same circumstances. We have recently received a confirmation of this opinion from another very respectable source. These observations cannot be stated as conclusive, but deserve attention.

Arsenic was employed in the early stage of the disease at Medfield in 1806, with apparent benefit, and has been used in various instances since, as it is said, not without advantage. But the committee are not acquainted with so many and so accurate observations on this subject, as to enable them to form an opinion respecting it; nor are they satisfied, under what head it should be ranked, if its effects are salutary.

DIET.

The general rule respecting diet in acute diseases applies to that under consideration. This rule is to supply the stomach with the most nutritious food it can digest without labour to itself or irritation to the rest of the system. It may indeed be necessary to make some exceptions to this rule in the first days of acute diseases, at a time when evacuations are usually made; but this exception it is not very impor-

tant to regard, as in severe diseases the stomach will not bear much food at that time, agreeably to the conditions stated above. In this disorder it is said, that the appetite and powers of digestion are often greater, than in most other acute diseases. On the appetite we cannot place full reliance in a disease, in which the sensibility is so variously and irregularly affected. But when the powers of digestion appear fully adequate to the purpose, not only the usual farinaceous nutriment, but even animal decoctions, broths and soups, may be given with advantage. It must not however be forgotten that the system can bear rather less nourishment, than the stomach would be capable of digesting, more easily, than it can bear the irritation and fatigue, produced by loading the stomach with a greater quantity of food, than it can easily convert into chyle.

In suggesting their ideas respecting the mode of treatment the committee have sometimes gone into detail, and have sometimes given only very general opinions. The reasons for so doing will probably appear obvious to the counsellors. One of them was their desire to curtail as much as possible a report, which has extended to a greater length, than had originally been contemplated. The committee are fully sensible that much might now be added, and that much might be amended.

THOMAS WELSH,
JAMES JACKSON,
JOHN C. WARREN,
} Committee.

Boston, June 20th, 1810.

CASES.

The following cases are subjoined to the report by the committee. They are, with the exception of one or two, all which have been communicated to them; and are valuable as illustrating the history of the disease, its varieties, its mode of treatment, and the morbid appearances ascertained by dissection.

CASE I.

BY DR. WILLIAM PAYNE,

Of a woman of middle age, robust health and good habits—commenced March 25.—Has had great dread of the epidemic.

1st. day. Great agitation, sighing, anxiety; rigors frequent, but not severe; on right cheek, and on the side and end of the nose some swelling and a few red pimples; eyes without their natural lustre, and glassy; skin dry; pulses not accelerated, in left wrist extremely feeble, in right more full; most excruciating pain in left ankle, knee, elbow and shoulder, with numbness and pricking sensation like that in a limb which has been asleep; in the ends of the fingers diminished sensibility, so that the sensation is that of having been frost-bitten; in the head no pain at first, but two hours after the attack it became violent; sensation of fulness at stomach and eructation with temporary relief.

Treatment and further course. Pediluvium—embrocation of the parts affected with the following liniment.

R. Olei fixi Oleae Europœæ,

Aquæ Ammoniæ,

Tincturæ Meloes Vesicatorii fortis p. æ.

Pains and numbness partially relieved. Patient placed in warm bed, drinking frequently brandy and water, mint and pennyroyal tea, as warm as could be swallowed—felt better after such draughts.—Shortly a recurrence of pain and numbness. One teaspoon of *sulphuric ether* with two of *tincture of camphor* in hot water. To left foot a sinapism with common salt, the liniment above to parts in pain—to right foot jug of boiling hot water. Rigors continuing, a warming pan filled with hot coals was kept moving between the blankets. Warmth restored with relief, free perspiration.

At 9 o'clock P. M.* increased pain in head; threatening delirium; pulled off her cap with violence, and called for tincture of camphor to bathe her head. Occasionally twenty or thirty drops of sulph. ether dropped on forehead—a grateful coolness followed, and generally remission of pain. Billets of wood heated in boiling water kept about her to maintain perspiration. Cordials as before mentioned were administered, whenever the pulses were found to sink. Tincture of opium prescribed,

* The hour when the disease commenced is not given us.

which the patient refused to take. In four hours the symptoms all mitigated ; perspiration maintained.

2d DAY, morning. Night without much distress —perspiration continued—pulses have varied ; have been very low, but easily excited by cordials ; pain now mitigated but not removed ; on the tongue a dry ridge in middle with moist edges. Continue in bed. A large vesicating plaster to neck. Cordials as they may be required, and external heat.

7 o'CLOCK P. M. Neck vesicated ; head relieved ; mind clear ; free perspiration.

WINE whey with lemon juice, which was very grateful.

3d DAY, morning.—Much relieved. Perspiration has been maintained without loss of strength. Thirst has been moderate—has taken tea and coffee. —Pain and tightness across forehead ; pulses good ; sense of fulness at stomach.

KEEP in bed—pursue the same course—take frequently some meat broth.

7 o'CLOCK, P. M. Doing well. Pulses in right hand natural, in left more full ; perspiration has been moderate through the day, and easily excited ; fulness at stomach was relieved by a draught of cider ; stricture continues over eyes ; itching over the whole body.

MILD laxative.

4th DAY—morning. Night good; bowels opened ; pulses natural ; able to sit up most of the day ; the only complaints are weakness and want of sen-

sibility in the ends of the fingers. Decoction of Cascarilla and Virginian snake-root.

5TH DAY—Altogether convalescent—attendance discontinued.

THIS patient was nursing, and her milk did not leave her.

CASE II.

BY DR. OLIVER FISKE,

OF T. S. about thirty years of age; of a sanguine temperament and lax fibre—has been subject to typhus almost yearly since he was fourteen years of age, when he had cynanche scarlatina very severely.

WHILE at work he was seized suddenly with pain in one finger, resembling the sting of a bee; this pain darted with the rapidity of lightning from joint to joint, until it had passed over all his limbs; it then gave him one general shock like electricity, which he had often experienced; at which moment he was deprived of sight, and felt a sudden faintness and sickness at stomach, with indescribable distress. In this situation he was carried into the house. The pain soon became more confined to his head, occasionally visiting the breast, stomach and extremities, but was less pungent than at first. Pupils much dilated with a wild, penetrating stare; pulse languid and irregular; and great prostration of strength. Reaction was produced with great difficulty. Submuriate of quicksilver was administered, and the mouth was affected on the third day.

On the fourth he had an injection. On the fifth he was decidedly convalescent; the vital functions however were restored by almost imperceptible degrees; he could not be moved, except from one side of the bed to the other, until the ninth day.—After that time his recovery was more rapid. The convalescent state was attended by great watchfulness and irritability, for which opium was administered.

CASE III.

BY DR. T. BABBIT,

Of a man aged thirty years, of a healthy, hardy constitution.

April 14. While at work about ten o'clock A. M. Mr. —— felt suddenly a pain in the loins; This pain increased rapidly, and he soon went home. Immediately after he entered the house his head was drawn back; he put up his hands to assist in bringing it forward, but they also were affected with spasm, and he was unable to remove them. During two hours the spasms were so violent, the patient was thought to be dying, and once he was believed to be dead. Warm applications were made to the surface, as fast as possible; blood was drawn from the arm, by which the spasms were in some measure relieved. In the course of twenty-four hours ne took forty-two grains of crude opium, with ardent spirit. At seven o'clock P. M. of the first day he grew more easy, especially of the spasms; his senses returned, of which he had been deprived, and he

complained much of his stomach. Plaster of cantharides over region of stomach.

April 15. During night some rest. Today more calm;—blister black and dry. Powder and compound tincture of cinchona, with twenty drops of tincture of opium, every hour. Two ounces of the powder were taken in a day. In the evening an amendment generally;—blisters of better colour.

April 19th. Has been mending to this time; now decidedly convalescent.

CASE IV.

Of Mrs. F. aged about forty years—tall, and thin, sanguineo-bilious temperament, the mother of many children;—has been nursing ten months, by which her strength is reduced.

On the 19th of May she worked very hard, and at night felt very tired; tried to work at her needle, but was not able, she knew not why. About 10 of the clock P. M. she was seized with general agitation, and coldness; went to bed, and these symptoms continued severely, accompanied by tremors, and extreme head-ache; her flesh grew hot though she still complained of being cold. About 11 of the clock she vomited the food in her stomach.—Violent head ache, pain in limbs and heat continued through the night. In the morning she vomited some sage tea which she drank, but has not thrown off any bile.

May 20th, 8 of the clock, A. M. I found her in a deep sleep from which she was not easily roused.

On her face and neck there were some red spots, irregular and confused, with an indistinct miliary eruption; at a distance she appeared to have the measles. Skin warmer than natural, a clammy sweat about her arms, respiration slow, full and laborious, pulse in wrist harder and fuller than natural, one hundred and six in a minute; pulse in carotids full, strong and hard. When roused from her sleep she seemed in a maze, and stared round wildly; pupils very much enlarged, tunica adnata not clear, countenance much altered, haggard, yet more red than natural; noise disturbed her; pulses rather more frequent and smaller after waking and rising up in bed; sweat increased; tongue white, thinly coated, more dry than natural. She said her head ached excessively, and that it seemed heavy, that her mind was confused, that she could not get distinct ideas, that she never was so sick before, that she felt frightened, and thought she could not live long; yet she reproached her friends for calling the Doctor so soon.* Her strength was much diminished, but not extremely prostrated by the disease; she moved without much difficulty, but could not hold her head up. A vein was opened in the arm, while the patient was assisted to sit up in bed;—the blood was allowed to flow, until an effect was produced on the pulse; the quantity was by measure thirteen ounces. After lying down she shew by her countenance and by fre-

* This case occurred in Boston where there were very few persons only sick with this disease, and the patient was not under any apprehensions concerning it.

quent gaping that she was near faintness. Her head grew somewhat easier, but remained equally confused. Sweat continued after bleeding.

PILLS containing submuriate of quicksilver and powder of ipecacuanha, of each one grain in every pill, were prepared for her. Of these she was directed to take one every hour and a half. She was also directed to keep the bed cloaths over her, not having a larger quantity of them than was comfortable; and to drink frequently of sage tea.

11 of the clock, A. M. Has taken two pills; heat has diminished, skin dry, but not husky; part of the time since last visit she has been sweating; is disposed very much to sleep; heat more than natural; nausea, thirst, countenance more natural, less red; the eruption on her face gone or nearly so; pain and confusion in head much less. She coughs and spits bloody mucus, this however she has done occasionally for ten days; is frequently seized with pain shooting down right side of her neck to sternum; P. 96. less hard and less full; tongue thinly covered, rather brownish white; pupils much less dilated. In every respect she seems more comfortable and more natural. The blood drawn has a buff and is strongly cupped, crassamentum small, serum deeply yellow.

Her cloaths having become uncomfortable, she was taken up during my visit, was shifted and had her bed made. She felt faint while up, and complained of nausea; after lying down she seemed rather refreshed; nausea increased and she threw

off some tea with loose, ragged flakes of dark mucus; this vomiting gave some relief.

Continue the pills, and warm sage tea. Apply large plaster of cantharides to neck, first rubbing with strong tincture of cantharides. Frequently drop sulphuric ether on her head, and apply a jug of hot water to her feet.

4 of the clock, P. M. Continues sleepy—skin warmer and higher coloured, particularly her face. P. 100—rather hard; but none of these symptoms so severe as in morning at 8 o'clock. Has vomited once more the same matters. When I waked her, she was composed; said the blister pained her very much, but that her head was much more clear. She had a severe pain in a small spot behind the vertex of the head; after dropping on some ether it shortly left her. Pain in neck and breast gone. Tongue brown, white edges, coat grows thicker. Raises herself in bed better than in morning; speaks more naturally; urine scanty and strangury.

TAKE the pills once in three hours. Mucilaginous drinks.

8 of the clock P. M. Symptoms not at all worse. Pills once in six hours.

MAY 21st. Symptoms have been abating; still drowsy; pains much less except in loins, where it is severe and where she is much subject to severe pain. Coughs and expectorates bloody mucus; but does not cough freely; is restrained by general soreness internally. P. 92 in morning, 100 in evening, not hard. Urine very scanty, not very high coloured,

has white cloud floating in it. T. more brown; nausea, and rarely vomiting continue; wants cyder, as she has from the beginning; being indulged the nausea was relieved. Two dejections today which gave relief. Mind more clear today, but she is still rather drowsy.

22d. Pulse 80. natural. Countenance, skin, whole appearance much more natural; feels decidedly better; expectoration more easy, and without fresh blood. Gums sore. Omit the pills.

Evening. The whole day has been much better; bore getting up very well; more urine. P. 90 skin rather warmer. Take one pill to night. Take in morning sweet tincture of rhubarb with 15 grains of the powder.

23. A good night. In the evening was exposed to cool air from open window, while asleep—this occasioned a chilly turn, which did not last long. Today more warm and sleepy than yesterday; a little uneasiness in head, feet cold; P. 90; some appetite. The rhubarb has produced two dark bilious stools, with relief.

24. Was not so well yesterday afternoon; in night restless; head not painful, but feels tender and is much affected by the hammering of some carpenters in next house, which has not disturbed her before. P. 84—full; mouth quite sore; no appetite.

Take of decoction of officinal cinchona lb. I.
compound tincture of cinchona oz. IV.

Mix them together, and take one ounce every four hours.

Evening. Symptoms better.

25. Complains chiefly of distressing faintness at stomach. At night she threw off some bile, which gave relief; then followed diarrhæa, which continued severely three days, during which she was constantly gaining strength and appetite. At the end of that time health was entirely restored, so that professional attendance was no longer required.

CASE V.

Of Doctor Abraham Haskell, an eminent practitioner in the county of Worcester, and one who had had very extensive experience in this disease; —of sanguine temperament, large and muscular;— about sixty years of age. Taken from notes furnished by himself.

April 28. Having the precursory symptoms, or strong marks of predisposition to the epidemic disease, he was called in the afternoon to visit Mrs. L. and tarried with her till her decease, which took place about 9 of the clock p. m. This patient was frequently throwing up very bad looking matter, which in a short time became very black. Her breath and the effluvia of her body were in the highest degree nauseous and offensive. Dr. Haskell's attentions to her subjected him to the necessity of inhaling a large proportion of the offensive effluvia; and they produced in his lungs the sensations of heat and uneasiness, accompanied with those of faintness and debility.

He was afterwards kept up by other patients till midnight, when he retired to rest and slept as quietly as usual until a little before day-light. At this time he was roused by pain and distress; his left hand and forearm were extremely numb, so that he could shut his fingers only partially; his feet, legs and knees were affected by the mixed sensations of coldness, pain and numbness; at the præcordia and lower part of the chest he felt great oppression with the sensation of heat, accompanied by faintness; he had headache and felt universal restlessness and distress.

A little after day-light he became more easy and fell asleep. Before sunrise he was called to visit another patient with a neighbouring physician. He rode to that gentleman's house, about a mile and a half, but found himself too sick to proceed, and stopped to become the subject of his own art.

He had about twenty ounces of blood taken from his arm, which in some measure mitigated all his distressing symptoms, but chiefly the oppression at the præcordia and breast. An hour afterwards he took a pill which produced two operations up and two downwards. These evacuations gave further relief, so that in the afternoon he rode to his own house in an adjoining town, a distance of about eleven miles, and did not suffer from the exertion.

The remainder of the disorder gradually wore off in two or three days without close confinement.

CASE VI.

Of Mrs. B——, aged sixty, of a robust habit.

Mrs. B. was affected soon after rising in the morning with sickness at the stomach, and great pain in the head, and slight chills. The headache increased during the day, she gradually became comatose, to the great alarm of her friends, and in the evening was incapable of recognizing any of her family. The pulse at this time was about one hundred, and rather depressed. Skin inclining to be cold.

She had blood drawn to the amount of seventeen ounces, after which the pulse became more free, and she was more sensible, so as to put out her tongue, which she had not done before. Then she was directed to have an injection every hour till evacuations were produced, and a large blister applied to the back part of the neck. She had a restless night from the pain in the head. The injections operated very partially; yet in the morning she knew her physician. A cathartic was now ordered, which operated well and relieved the pain in the head. After this she gradually convalesced, and got upon her feet in about a week from the attack.

CASE VII.

BY DR. O. FISKE,

Of a man aged twenty-five years, of an hypochondriac and gloomy disposition.

Seizure sudden and violent—the usual symptoms of the epidemic accompanied with severe hysteric symptoms, laughing, crying, and extreme restlessness. The patient could scarcely be kept in bed, and when reproved asked his friend how he would act, if he was crazy. Perspiration was produced, he became more calm, in about twelve hours the symptoms became more favourable, and continued so for twelve hours. His relations who attended him were of the same disposition with himself; upon the recurrence of some of his symptoms they were alarmed, and renewed the sweating process with great violence, and continued it many hours until a syncope was nearly produced. By prudent management he was restored and continued stationary until the third day. On the fifth nothing unfavourable was remarked in his case except great dejection of countenance and anxiety respecting his recovery. In the night Dr. F. was called to him, when he was wakeful with extreme solicitude; although sufficiently warm, and in a gentle perspiration, he had the sensation of being in a cold sweat. He was encouraged, rubbed with dry flannel, and got some panada with some tincture of opium in it —he then became more cheerful and his unpleasant sensations subsided.

In the morning high delirium—soon after fury, so that physical restraint became necessary. He wished to escape from those about him, whom he thought enemies, and who he believed had a design to immerse him in boiling water. After thirty-six

hours the delirium gradually subsided, and nature seemed disposed to resume her wonted functions; but the powers of life were too much exhausted, and death ensued on the next day, which was the eleventh from the attack.

CASE VIII.

BY DR. T. BABBIT,

Of a man who was taken sick on the first of April.

A man on the second day of the disease had violent spasms under the right arm and right side, with pain most agonizing; face almost black, as if strangulated; blood frequently gushing out from his nose. Venesection gave immediate relief.

CASE IX.

BY DR. A. FLINT,

Of a labouring man, sixty-four years of age—with symptoms of pneumonic affection.

April 6. This man was violently attacked with universal tremor, acute pain in the head, and undescribable distress at the stomach; the tongue was dry and soon became parched, with distressing peripneumonic symptoms. The disease progressed rapidly, on the sixth day he died. Very few spots were discovered. This case occurred at Leicester, during the prevalence of the epidemic there, and it was considered by Dr. F. as a case of the epidemic disease.

CASE X.

Of a child of Mr. Gleason, aged eighteen months.

This child from being perfectly well and playful, was suddenly attacked with shivering fits, became stupid, and gave symptoms of severe pain in the head and back. Its skin, when first noticed was livid and cold, but afterwards hotter than natural, though the heat did not continue long, and was succeeded by an unusual coldness. The tongue was coated with a light coloured mucus. The stomach was nauseated, and occasionally ejected such matters, as had been lately swallowed. At the end of about twenty-four hours, the child exhibited some favourable symptoms. The pulse, which was before very much depressed and very irregular, became distinct and less variable; the countenance was reanimated; the coma was succeeded by a return of sensibility, sufficient to enable the child to recollect those around it. These flattering appearances lasted but a short time; the coldness and insensibility returned, the pulse became imperceptible, and the patient sunk in about thirty hours from the attack. In a few days afterwards, the remaining child of the same family fell a victim to the disease.

DISSECTION, NINETEEN HOURS AFTER DEATH.

EXTERNAL APPEARANCE.

The body exhibited on its anterior parts a considerable number of irregular purple spots and a few

regular ones. The back part of the trunk was of a very deep and uniform purple colour.

HEAD.

The superior longitudinal sinus was full of dark coloured blood, which had partly coagulated. The external surface of the dura mater had nothing remarkable. When this membrane was divided, a quantity of serum was discharged, which was transparent on the left side, and bloody on the right. The child had lain on the latter side from the moment of attack. The blood vessels were not very full of blood; for a large quantity had been discharged from the longitudinal sinus. These vessels were generally covered by a substance, which accompanied them in the greater part of their course, bearing a resemblance to coagulated lymph in consistence, but approaching pus in colour. Besides these portions, there were many small masses situated in various places between the pia mater and tunica arachnoides, especially near the vertex and between the hemispheres of the brain. The thin coats were glued to the dura mater at the upper edge of the hemispheres, and the hemispheres were so strongly connected by these coats under the falx, as to require the aid of a knife for their division. The superior parts of the cerebrum being removed, so as to expose the medullary substance, this was seen full of small red points, placed in clusters, which increased in size after a few minutes. The lateral ventricles were quite full, but not over distended with serous

fluid. The plexus choroides was swelled, but of a pale colour, and its velum interpositum thickened by the same kind of lymphatic substance, which has been already described. The third and fourth ventricles exhibited no peculiar appearance, except the water, which they necessarily contained. The superior part of the cerebellum and the inferior part of the cerebrum and cerebellum had a large quantity of the yellow-coloured lymph. The base of the cranium contained serous fluid. The consistence of this brain was healthy.

THORAX.

The lungs were of a light colour on the fore part, and dark behind, as is usual in healthy lungs after death. Their consistence was natural. Their contents were a proper quantity of frothy mucus. The heart was very firmly contracted. The right cavities were full of black blood, and the left empty. The vessels, on the surface of the organ, were minutely injected with blood.

ABDOMEN.

The liver was large and turgid, and of a very livid colour. On dividing it, great quantities of black blood were poured out. The gall bladder was moderately full of yellowish bile. The external and internal coats of the stomach had a perfectly healthy appearance. Its contents were a dark coloured fluid of vinous smell, similar to that of the substances which had been taken before death. The coats of

the small intestines were healthy. Their contents were yellowish in the first portion, and green near the cæcum. In the latter was a large, dead lumbricus. The large intestines contained flatus without any offensive smell, and a considerable quantity of well digested feces. The spleen and pancreas had nothing remarkable. The kidneys were quite turgid and discharged urine, on being pressed. The bladder was full of urine.

The muscular fibres were livid; and of a natural strength. The blood was very dark coloured, and coagulated after being discharged from the vessels.

CASE XI.

Of —— ——, thirty-nine years of age and of robust habit.

This man was exposed to a shower of rain, while much heated by working, and thus got a severe chill. The three days following he continued to pursue his work, and on the fourth sat a long time, in an open boat under a hot sun. On the evening of this day he was attacked with a chill, which lasted for a considerable time and was followed by great heat, a violent pain in the right side of the nose, and a pain in the head and back. Then his right eyelid began to swell, and afterwards the left and the cheeks below. The next morning he rose, and when his attendants had quitted him for a short time, attempted to go out of the room, but was seized with a convulsion

and fell to the floor. After this he seemed inclined to be comatose, yet answered questions proposed to him, but in an irregular manner and with evident signs of derangement of mind. His pulse at one P. M. was 120 and somewhat depressed. The tongue moist and clean. The skin dry and hot; but became quite moist after a small dose of wine of antimony and spirit of nitrous ether. The bowels were regular and urine natural. At this time the eyelids were completely closed by a very hard swelling of a livid colour, which extended to the forehead and cheeks. The respiration was laborious. There was a slight cough.

The second night was a very restless one. His cough increased rapidly, and was attended with a copious expectoration of mucus of a common appearance. Five or six discharges were made from the bowels; which were checked by moderate doses of tinctures of opium and cinnamon. He made great complaint of uneasiness about the breast, and breathed with more difficulty. The delirium increased to fury. On the next morning, the swelling of the eyelids was diminished and had a pale, livid, gangrenous aspect. The swelling extended over the scalp. The pulse was 110, and more depressed. The skin moist. The tongue was covered with a slight mucus of a light colour. The urine was turbid.

The third night was like the last, as to the agitation and extreme distress. The swelling lessened so much that the eyes were opened on the following

morning and exhibited the tunica conjunctiva of a dark red colour. The cough and expectoration became less frequent, and the pain of the breast was no longer complained of; but respiration was not more easy. The skin was cold and moist; the pulse about 90 and very weak; the tongue again clean and moist. Toward morning he began to pick the bed clothes. As the day advanced the difficulty of breathing and coldness of the skin increased, and at 9 A. M. he expired.

THIS patient was treated, during the existence of the febrile heat, with diaphoretics and a cooling regimen, and blisters on the back. Afterwards with the most powerful stimulants, agreeably to the plan then supposed to be generally successful; and with blisters on the breast, and head.

DISSECTION,

FOURTEEN HOURS AFTER DEATH.

THE body became covered with irregular purple marks of various size, about half an hour after death. The face was turgid, and this part, and the neck and shoulders were very livid. The blistered parts were quite dark coloured and bloody.

HEAD.

THE hemispheres of the brain adhered by their thin coats to the dura mater and to each other. Between each of the menynges was some serous fluid; and an effusion of coagulated lymph. The last was most conspicuous over the blood vessels, which

were full of dark blood. The cortical substance was pale. The lateral ventricles were much larger than natural, from being distended by a transparent serum. The menynges at the basis contained coagulated lymph, and under them was a quantity of serum.

THORAX.

The fore part of the lungs was covered with a very thick layer of yellow coagulated lymph, which extended from the pleura of the lungs to the pleura of the ribs, fixed these two parts together, and then passed along the side of the cavity toward the spine. The right cavity contained a quantity of pus, which was judged to amount to thirty-two ounces. The substance of the lungs was rather firm; yet they had not that kind of hardness, which is produced by common inflammations of the lungs. The surface of these organs was shrivelled. Their colour was peculiarly livid and unhealthy. The degree of firmness they possessed may be attributed to their containing more blood, than is usually collected in those parts after death. The pericardium had a very little water. The heart was inflamed on the anterior face, and had a thick flake of coagulated lymph near the apex, and another on the origin of the aorta. The cavities were equally filled with coagulated blood.

ABDOMEN.

When this cavity was opened, there was not any very offensive odour emitted. The stomach was perfectly healthy in every respect; and did

not contain any fluid. The intestines were in a healthy state. The liver was shrunk, and that part of its coat, next the diaphragm bore marks of slight inflammation. The gall bladder was quite distended with dark tenacious bile. The rest of the abdominal viscera exhibited no remarkable appearance, except the urinary bladder, which was distended with urine.

The blood and the muscles were of an exceedingly dark colour.

CASE XII.

Of Daniel Penniman, forty years of age;—of good constitution.

Mr. Penniman was exposed on the 25th of April to the effluvia of very putrid and offensive matters, which he was compelled to remove. On the 26th he laboured much, and while overheated descended to a cold cellar, in which he remained a considerable time. At one, on the following morning, he was awakened by a severe chill, which continued with very slight remissions for three or four hours. This was succeeded by great heat of the skin, pain in the head and back, and at six o'clock vomiting, first of indigested food, afterwards of greenish mucus. Then the eyes became red. The respiration was quick, but not embarrassed. The tongue was slightly coated with a yellowish mucus. The pulse about 120, rather depressed. As the vomiting continued,

he was directed to take an emetic, which operated twice, relieved the vomiting and left him somewhat easier. After this a large blister was applied to the back of the neck.

Thus far there was nothing very alarming in the symptoms; but in the evening the heat subsided. The skin became cold and was at the same time moist. He was comatose, excessively restless and averse to taking any thing. The pulse varied between 100 and 109 and was depressed. The body emitted an offensive smell. He was immediately directed to have an ample blister on the head; and to have the application of external warmth by hot cloths, vessels of warm water, and such other modes, as his extreme restlessness admitted. He was to take a solution of camphor and opium and ammoniated alkohol in as large doses, as could be borne; and to drink freely of wine and diluted alkohol.

On the 28th the coma had increased, without any diminution of restlessness. The redness of the conjunctiva was lessened, and the pupil slightly contracted. The countenance haggard. Pulse small, quick, irregular and indistinct. A few small, irregular, purple spots appeared in various parts of the body; one of them, on the joint of a finger, exhibited the appearance of incipient mortification. There were also two vesicles on the knee and another on the thigh. Soon after these, a partial efflorescence was discovered on the arm. The blister on the back had done well, but that on the head was displaced

by the incessant motions of the patient. The head was therefore ordered to be rubbed with the strongest vesicating tincture; the same substance, with oil of turpentine to be employed in frictions on the extremities; injections of alkohol to be given; and the tincture of cantharides to be taken internally in such doses, as the patient should be able to bear.

After this period the symptoms did not vary materially, except in degree: and the patient expired at two o'clock.

DISSECTION,

TWO HOURS AFTER DEATH.

The petechiae were less distinct than before death; the vesicles and efflorescence disappeared. The countenance and eyes had not much altered.

HEAD.

The menynges of the brain contained a small quantity of serous fluid, and also a very considerable and uniform effusion of coagulated lymph. The hemispheres adhered to each other. The ventricles were full, but not over-distended with water. In the basis of the cranium was a considerable quantity of yellowish fluid. Under the cerebellum and the tuber annulare lay two large masses of lymph which compressed those parts and indented themselves in their substance, especially flattening the last named part.

THORAX.

The lungs had a healthy aspect. They were anteriorly light and posteriorly dark coloured. The heart was inflamed. The minute branches of the coronary arteries were rendered distinct by blood thrown into them. Near the apex, and on the origin of the aorta were exudations of lymph. The valves of the organ were opaque. The cavities empty ; but the aorta was full of black blood.

ABDOMEN.

The liver was of a good colour, and moderately distended with blood. The gall-bladder was full of dark, tenacious bile. The stomach had two or three small spots of inflammation in the mucous coat: it contained some dark coloured fluid, and a little greenish mucus. The small intestines were in a healthy state, except a part, which was rather more red than the rest. The large intestines were contracted to a rope, except the rectum and part of the colon, which contained the alkoholic injection. The pancreas, spleen and kidneys had not any thing worthy of note. The bladder was filled with urine.

The muscles had a livid colour: so had the blood. This fluid coagulated after escaping from the vessels.

CASE XIII.

Of G. B. thirty-five years of age.

This man, residing in a place, where the epidemic prevailed, was advised to drink freely of ardent spirits, in order to repel the disease. This recommendation was so far agreeable to him, that he propagated the doctrine among his friends, and prevailed on two of them to accompany him in keeping continually muddled. His two friends soon found themselves becoming unwell by loss of appetite, and frequent and increasing attacks of head ache. They resolved to lay aside the antidote, and die, if it was necessary to die, soberly. These two gradually recovered. B. was not so easily discouraged. He persevered in his plan of prevention. At last he was affected with a violent inflammation of one eye, to which, however, his specific prevented him from attending. Afterwards he complained of head ache and seemed to be slightly delirious, while attending to his affairs; but his family had been so accustomed to see him in a certain state, that they supposed he had taken rather more than usual of his pleasing preventive. Suddenly he became quite furious and unmanageable. A practitioner of medicine was called for, who gave him the compound powder of ipecacuanha and blistered him. His pulse was then one hundred and twenty, but varying exceedingly; for when he slept or dosed, it was about one hundred and irregular; when he

awakened, it immediately became quicker and more regular. His skin was warm and moist. Tongue coated with a slight brownish fur. Respiration easy. Urine high coloured. The eye affected was highly inflamed. The pupils were contracted. After this his head ache increased, he was excessively restless and constantly delirious ; but his delirium was of a gay kind, and he rarely complained of pain, except when questioned. He had the head blistered, which very sensibly relieved that part. His pulse however gradually sunk, his skin became cold, his coma increased, and notwithstanding he was spurred with camphor, opium, and brandy, he expired in three days from the invasion of the violent delirium, and a week after the attack of inflammation in the eye.

DISSECTION,

FOUR HOURS AFTER DEATH.

The body was livid about the neck and back part of the trunk. The inflamed conjunctiva had entirely lost its redness.

On opening the longitudinal sinus a most copious discharge of blood took place, which continued till the brain had been dissected. Between the pia mater and arachnoides there was serum and some coagulated lymph. The ventricles were more than half full of water ; and a considerable quantity was found in the basis of the cranium.

The lungs were full of liquid blood ; but had a healthy texture. The heart was not disordered ;

the auricles contained about an equal quantity of dark coloured blood.

The liver was pale, flaccid, and free of blood. The gall bladder adhered to the colon, and was full of thick green bile. The stomach contained a quantity of greenish fluid. Its mucus coat was highly inflamed. The intestines exhibited nothing remarkable. The kidneys were turgid and pale. The urinary bladder empty.

The dissections in the four cases X—XIII. were performed by John C. Warren, M. D. adjunct professor of anatomy in Harvard College.

CASE XIV.

BY DR. JOSIAH BARTLETT,

Of A. C. a child.

April 9, 1810. The child awoke about seven o'clock A. M. with unusual hunger; on rising was remarkably debilitated, and unable to stand. At eight o'clock in a profound coma, resembling the advanced stages of typhus gravior; pulse at the wrist small, slow and irregular, but a very active and rapid motion of the carotid arteries; pupils much dilated, extremities cool, the masseter muscles rigid and the countenance distorted. The stomach had discharged the aliment taken, without any morbid appearances, and she had had a natural discharge from the bowels.

The most active stimulant, cordial plan was commenced. Opium, wine and brandy were admi-

nistered freely; the head, neck and breast were extensively blistered, the limbs embrocated with ardent spirit, which, moderately diluted, was also injected by the rectum. No apparent effect was produced by this treatment; and without any other change, than a rapid suspension of the vital functions, she died in nine hours from the attack.

The body was examined very shortly after death. The skin was slightly discoloured with petechial appearances, where it had been broken, and there was a dark coloured spot on the nates. The vessels on the surface of the brain were astonishingly crowded and distended, the sinuses filled with blood, but no other unnatural appearances. The gall bladder was full of bile, which by moderate pressure was emptied into the duct. The viscera of the thorax and abdomen were perfectly sound; except that the inner coat of the stomach appeared to be very slightly inflamed, probably from the use of ardent spirit, &c. The mesenteric glands were enlarged and indurated, but this change probably was not recent.

CASE XV.

BY DR. T. BABBIT,

Of a lad about sixteen years of age—very healthy and vigorous.

April 17. He eat breakfast as well as usual, and went to work. About ten o'clock A. M. returned home with head ache, which had seized him suddenly. To this complaint he was subject, and

therefore it did not occasion alarm. He soon felt pain in his limbs with extreme soreness, and prickling of his feet. The pain both in head and limbs increased very rapidly, and at three o'clock P. M. he became comatose ; at eight o'clock he became very much distressed, and after that time did not speak. The following symptoms also occurred ; violent spasms in neck and left arm, head drawn back, neck swollen, violent pulsation in the carotid arteries, eyes red and glassy, respiration laborious. About ten o'clock on the 18th he died, after about twenty-four hours' sickness.

After a few hours the body was examined.

In the head—dura mater extremely tense—this was opened with great caution, that no blood vessels should be wounded ;—just under the vertex was found a gill of extravasated blood as black as ink ; the left lobe very much inflamed, the right perfectly natural.

In the thorax—the left lobe of the lungs covered with livid spots, some the size of the thumb-nail ; the right lobe natural.

In the abdomen—the viscera natural except the spleen—that was greatly enlarged, in shape resembling one of the kidneys, the colour very much darker than usual, and in its bed the blood was settled, so as to give an appearance like a bruise.

The stomach contained about half a pint of black coloured fluid.

CASE XVI.

BY DR. J. P. CHAPLIN,

Of Susan, daughter of John Hayden, of Cambridge-port, about three years of age.

This child was remarkably healthy until four o'clock Saturday afternoon, March 24th, when she complained of head ache and fatigue, having the cheeks much flushed, skin hot and dry, respiration quick, slight delirium, and pulse quick and hard. After sleeping a short time, the symptoms became more moderate and she again appeared playful. From seven till one o'clock she appeared restless, frequently groaning and talking incoherently. At this time she appeared nauseated and soon vomited the food eaten at dinner the preceding day. An ineffectual retching continued, which induced the exhibition of an emetic portion of ipecacuanha. This produced two or three ejections of mucus, considerably yellow, apparently with bile. The symptoms above described now increased considerably until five o'clock A. M. when she again slept. At seven the countenance became suddenly pale, and pulse feeble and fluttering. In half an hour, pulse at the wrist ceased, the countenance appeared more full and rather discoloured, as with slowly circulating blood; breathing very difficult, and occasionally slight convulsions; the pupil of the eye alternately contracted and dilated. An emetic of tartrite of antimony and ipecacuanha were given, and

soon followed by a solution of sulphate of zinc. This immediately procured several copious vomitings of a substance, resembling that described above. At eight o'clock A. M. deglutition became exceedingly difficult, when attempts to convey medicine to the stomach were suspended, and she was immersed in the tepid bath twelve minutes, without any apparent effects. At nine o'clock she expired.

APPEARANCES ON DISSECTION.

THE blood vessels of the brain were remarkably turgid with blood. Between the dura mater and tunica arachnoides was a quantity of serous fluid; and between the latter membrane and the pia mater, an effusion of yellowish coagulated lymph.

THE pericardium contained a little water. The lungs were full of blood. The liver was flaccid and empty. The gall bladder held a considerable quantity of bile. The stomach and intestines had nothing remarkable, except some intus-susceptions, and a round worm, contained in the latter.

CASE XVII.

ACCOUNT of a dissection by a physician in Connecticut, being an extract from a letter to a fellow of the society.

"I was present at the opening of the head of an adult, who had been sick of the epidemic disease in its severe form for some weeks. Near the close of life

he had the usual symptoms of hydrocephalus internus. The left ventricle of the brain was full of water, and the veins were very turgid. I saw two other cases near the close of life, which had been treated with stimulating remedies, in which also the symptoms of hydrocephalus internus appeared."

ARTICLE XII.

A DISSERTATION

ON THE

PROGRESS OF MEDICAL SCIENCE,

IN THE COMMONWEALTH OF MASSACHUSETTS.

Read at the annual meeting of the Medical Society, at Boston, June 6th, 1810.

.....

BY JOSIAH BARTLETT.

.....

MR. PRESIDENT AND GENTLEMEN,

In discharging the duty of this anniversary, I shall endeavour to delineate, as far as the occasion will allow, the progress of medical science, in the commonwealth of Massachusetts.

From a consideration of the early attention of our venerable ancestors, to the promotion of literature; the establishment of Harvard* university in 1638; and the various records and traditions of that enterprising period, it is not easy to explain our ignorance of the earliest physicians. But we may safely remark, that indigence is unfavourable to accurate investigation; that a wilderness is not adapted to the improvement of a conjectural art; and that professional eminence is the result of experience.

* John Harvard died at Charlestown, 1638.

THE general state of medicine at that time was limited and hypothetical, for the circulation of the blood by Harvey, and the course of aliment to nutrition by Pecquet and Asellius were but just discovered ; a careful observance of the nature, symptoms and cure of diseases by Sydenham, had scarcely commenced, and the medical establishments, which are now celebrated were unknown. But a regular intercourse with the parent country, occasional immigrations from European schools, and a progressive introduction of approved authors, afforded our predecessors the best means of instruction their situation would admit of ; and by their assiduity we are favoured with a regular succession of talents and acquirements, which have kept pace with the cultivation of science, and the refinements of polished society.

THE first medical publication in this state, was a paper in 1677, entitled, A brief guide in the small pox and measles, by Thomas Thatcher,* a clergyman and physician, who is spoken of as the best scholar of his time.

THERE is a letter, about a good management, under the distemper of the measles, without a date, or the author's name ; it was probably written as early as the preceding, but whatever were its merits, we can view it in no other light, than as an ancient curiosity.†

* Died 1678, aged 58.

† See files Mass. Hist. Society.

The introduction of variolous inoculation in Boston, by the influence and patronage of Cotton Mather, a celebrated divine, was a subject of much speculation; whilst the discourses and opinions of the clergy applauded or condemned it in a moral or religious view,* the controversies of the physicians were not more distinguished for candour and fair argument, than by a spirit of rivalship and ill nature. Many newspaper publications were anonymous,† but an open opposer was Lawrence Dalhound, a Frenchman, who had seen cases in Italy, Flanders, and Spain, and was supported by William Douglass and Joseph Marrion.‡

Zabdiel Boylston, of whom we may boast as the earliest inoculator for small pox in the British dominions, studied with John Cutler, an eminent practitioner. His experiments commenced with his son in 1720, and in a year he extended the disease to 247 persons, of whom but six died. During this period 39 others were successfully attended by Roby, and Thompson, in Cambridge and Roxbury. Resisting with intrepidity and perseverance the influence of

* The clergy of Massachusetts were defenders of inoculation, and the subjects of much abuse by its opposers. See observations, by Benjamin Colman, 1721. Also a vindication of the ministers of Boston, by some of their people, 1722.

A sermon, against the dangerous and sinful practice of inoculation, preached in London, in July, 1722, by Edmund Massey, was reprinted in Boston. The conduct of some of the medical faculty, who exerted their whole force to annihilate it, was violent and outrageous.

† See New England Courant, 1721—'22. This paper was rendered famous, by the juvenile essays of Benj. Franklin, who died 1790, aged 85.

‡ See appendix to Boylston. p. 52.

superstition, and the exertions of interested assailants, Boylston conquered the strongest prejudices, and lived to witness the extensive effect of his philanthropy. He published in 1721, from the philosophical transactions in Great Britain, an account of inoculation, by Timonius of Constantinople, and Pylarinus, a Venetian consul in Smyrna. He visited London in 1725, received flattering attentions from distinguished characters, and was elected a fellow of the Royal Society. In 1726 he published an historical account of inoculated small pox in New England. His subsequent communications and correspondence are sufficient evidence of his literary qualifications.

William Douglass, a native of Scotland, and a skilful physician, but a man of strong prejudices, accustomed to estimate the merits of others by his personal friendship for them, arrived at Boston in 1720.* He was the author of essays respecting the small pox in 1722 and 1730; also of several historical and political performances. In 1736 he published a treatise on an eruptive miliary fever with angina ulcusculosa,† which has been mentioned with approbation, and quoted in subsequent dissertations on cynanche maligna.

A pamphlet was published in 1742, on the method of practice in the small pox in 1730, by Na-

* Died 1752, aged 57.

† This disease commenced in Kingston in 1735. The number of deaths in the country averaged one in four cases, and in Boston but one in thirty-five. See Douglass p. 3.

thaniel Williams,* a pupil of James Oliver, a learned physician, taught by Ludowick, a German, the most celebrated chemist that had ever been in America.† Williams was in extensive practice thirty-seven years, and is represented as an able instructer of youth, a useful preacher, and most valuable citizen.

We are told that the art of healing was originally reduced to order by the officers of the church, and that many of our earliest divines, in imitation of the ancient priests of Egypt, Greece and Rome, were practitioners in medicine, by which they were enabled more effectually to promote their spiritual avocations; ‡ among these was Leonard Hoar, who went to England in 1653, took the degree of doctor in medicine, and afterward preached at Wenstead. He returned to this country in 1762, was elected president of the university, and sustained that office about three years.§

There is a tract on pharmacy, written in 1732, by Thomas Harward, a clergyman, and there are various statements in periodical publications, and disputes in newspapers, of little consequence at this period, which with those recited, are all the medical writings in Massachusetts, we are able to discover in more than a century and an half.

* Died 1737. aged 63.

† See preface to Williams, by Thos. Prince.

‡ See Magnalia, by C. Mather, book iii. p. 151.

§ Died 1675, aged 45.

Though the works of Hippocrates, Galen, Stahl, and others, were not unknown, those of Sydenham and his followers, were principally studied by our oldest practitioners, till the time of Boerhaave, whose invaluable labours commenced in 1701, which, with the commentaries of Van Swieten, the practical writings of Whyte, Mead, Brooks, and Huxham; the the physiology of Haller; the anatomy of Cowper, Keil, Douglass, Cheselden, Munroe, and Winslow; the surgery of Heister, Sharp, Le Dran, and Pott; the midwifery of Smellie and Hunter; and the materia medica of Lewis, were in general use at our political separation from the British empire.*

Our earliest evidence of a medical establishment, is an hospital at Rainford's island in the harbour of Boston, belonging to the commonwealth, which for upwards of an hundred years, has been appropriated to the reception of mariners and others, with contagious sickness. It is now under the direction of the board of health, and is principally occupied in the summer months, when vessels are subject to quarantine.

Inoculating hospitals, which are said to have been the first in the state, were opened in the vicinity of Boston in 1764, at Point Shirley, by William Barnet, from New Jersey; and at Castle William, by Samuel Geltson from Nantucket; at these Sylvester Gardner, Nathaniel Perkins, Miles Whit-

* There were many other valuable medical books in use during this period, but those are named, which are supposed to have been most generally known.

worth, James Lloyd, Joseph Warren, Benjamin Church, and Joseph Gardner, attended.* A few years afterward, they were succeeded by one in the neighbourhood of Marblehead, under the direction of Hall Jackson, from Portsmouth.

The appearance of small pox in Cambridge, in 1775, rendered accommodations necessary, to prevent its extension; and Isaac Rand,† a respected practitioner of Charlestown, who studied with Thomas Greaves, and was reputed to have been better acquainted with the disease than any of his cotemporaries, was the physician. In 1776 William Aspinwall and Lemuel Hayward, prepared conveniences at Brookline, the natal and the burying place of Boylston,‡ for private inoculation, and attended two classes; Rand and Hayward then associated, and the number inoculated in twelve months, by the above named gentlemen, exceeded two thousand. The reputation and success of this institution led to similar establishments, at different periods, in various places; but an hospital was continued at that town by Aspinwall, till variolous inoculation was superseded.

To enhance the superior advantages of a late discovery, it is stated as the opinion of Dimsdale, a celebrated small pox inoculator, that this mode of communicating it has been more detrimental than beneficial to society; and its ravages in populous cities

* See Boston Gazette, and Post Boy 1764.

† Died 1790, aged 71.

‡ Born in Brookline in 1684, and died at his patrimonial estate in 1766, aged 83.

are adduced to corroborate the remark. If this is a correct opinion from his extensive information, or from the effect of a constant promiscuous* inoculation, can it be applied to this section of our country, from the observations and experience of distinguished practitioners.† Whilst we gratefully acknowledge the success of every improvement, let us respect the exertions of those who have gone before us, in the alleviation of human misery.

The first information of physicians in an associated capacity, is in the preface to Douglas, which is addressed to a medical society in Boston; but there are no particulars respecting it. A gentleman lately deceased,‡ whose memory included a retrospect of sixty years, and who knew the author, had no recollection of its existence. It was probably temporary, for conference and consultation on a distressing epidemic§ which prevailed at that time.

An association of under graduates, denominated the anatomical society, existed at the university in 1771, and was instituted previous to that time. They held private meetings for a discussion of me-

* The small pox has never been constantly in Massachusetts, as in most of the other states, and in Europe.

† The small pox prevailed in Boston in 1676, 1689, 1702, 1721, 1730, 1752, 1764, 1776, and 1792, at which times, it has commonly extended either generally or partially to towns in the vicinity. It appears, that by natural small pox, one in six has died, and by inoculation, but one in two hundred.

See Historical Collections. Waterhouse on Kine Pox, 1810. p. 4. 27. Miller's Retrospect, vol. I. p. 287.

‡ James Lloyd.

§ Cynanche Maligna.

dical and physiological questions, and were in possession of a skeleton; but their demonstrations were confined to the dissection of appropriate animals, as the examination of a human body, was then an extraordinary occurrence, with our most inquisitive anatomists.

In 1774, attempts were made by a combination of medical students to obtain a more accurate knowledge of anatomy, than could be afforded by books and engravings; but their progress was greatly retarded, by the danger of discovery, which at that period, might have been fatal to their future usefulness.

There have been several instances of candidates for practice, resorting to the European schools to complete their medical education, which was doubtless a public benefit. Sixteen of the sons of Harvard, have received professional degrees in the universities of foreign countries, and four at Philadelphia.*

Obstetrick attendance, except in the most difficult cases, was seldom by male practitioners, till within the last sixty years; but this part of the profession is now principally conducted by physicians. James Lloyd,† a pupil of William Clark, an eminent physician of this metropolis; attended the instructions and saw the practice of Warner, Sharp, Smellie, and Hunter of London in 1753. He returned the following year, and has the credit of introducing the practice of amputation with the double

* See note A. at the end of the dissertation. † Died 1810, aged 82.

incission, and of being the earliest systematic practitioner in midwifery in this section of the United States.

Though some individuals, have been celebrated in particular branches of practice, there are no established distinctions, as in other countries; the utility of which, has been considered problematical.

The American revolution opened a new field for medical investigation, and the formation of an army, collecting the faculty from every part of the country, promoted a social intercourse. Joseph Warren, a most conspicuous character at that eventful period, was proposed as physician general, but prefering a more active, hazardous employment, he accepted a major general's commission, and in a few days, sealed his principles with his blood.* Benjamin Church,† an esteemed practitioner, and a pupil of Joseph Pynchon, was appointed Director of the Hospitals, but being charged with a treacherous correspondence with the British, was superseded by John Morgan,‡ professor of medicine in the college of Philadelphia.

The prudence and sagacity of Washington, which are as easily traced in the archives of science, as in the cabinet or the field, instituted the first medical examinations in this state of candidates for practice.§

* Slain on the heights of Charlestown, June 17, 1775, aged 35.

† Sailed for the West Indies in 1776, and lost at sea.

‡ Died 1789.

§ The surgeons and mates of the army were examined by persons appointed by the commander in chief.

The establishment of military hospitals, afforded extensive opportunities for observations and experiments; important operations in surgery were rendered familiar; whilst the diseases and casualties of camps were constantly occuring. Anatomy was greatly improved by a frequent inspection without fear of detection of the organs of the human body; physiology was more accurately comprehended, and a laudable spirit of inquiry, was assiduously cultivated.*

A branch of the hospital was continued at Boston, with peculiar advantages to students in medicine. In 1780 the first course of anatomical lectures in this Commonwealth, with dissections and demonstrations, was delivered by John Warren, surgeon of that establishment; they were repeated the following year, and students of the university were permitted to attend.

THOUGH the alma mater of Massachusetts, is the parent of many literary institutions† her eldest domestic offspring is the American Academy of Arts and Sciences, incorporated in 1780. Of the original number of this learned association ten‡ were of the medical faculty, and a proper proportion, has successively been added. Their charter, among

* See note B.

† The first College, and the first printing press in America, were at Cambridge. The attention of our first settlers, to literature and the arts, was gradually extended through New England, and to the other colonies. See Miller, Vol. 2. p. 332.

‡ David Cobb, E. A. Holyoke, Eben. Hunt, Charles Jarvis, Joseph Orne, Theodore Parsons, Oliver Prescott, Micajah Sawyer, John Barnard, and Cotton Tufts.

other provisions for an advancement of science and the useful arts, expressly requires the promotion and encouragement of medical discoveries; and the communications in their memoirs* evince, that this branch of useful knowledge, has not escaped their attention and patronage.

The Massachusetts Medical Society was established in 1781, with power to elect officers, examine and licence candidates for practice, hold estate, and perpetuate its existence as a body corporate forever. This auspicious event, which was effected by an application to the legislature, of thirty one distinguished physicians,† from various parts of the state, may be considered as the most interesting era in our history. Though a systematic mode of instruction had begun to dawn, and a liberal spirit of enquiry was gradually advancing, the peculiar benefits of regular meetings for personal improvement, and a diffusion of medical knowledge, must be obvious to cursory observers; whilst the conduct and decisions of the general court corroborate the remark, that a termination of civil commotion, is favourable to science and the arts.

In June 1782, after several preparatory meetings, by-laws were enacted, a common seal‡ was adopted, the society organized, and Edward A. Holyoke chosen president; the fellows were enjoined to com-

* Published 1785. 1790. 1804. 1809.

† See note C.

‡ A figure of Esculapius in his proper habit, pointing to a wounded hart, nipping the herb proper for his cure. Motto "natura duce."

municate important cases, and the faculty at large invited to a familiar correspondence; circular letters were sent to similar societies in our own, and in foreign countries, which were respectfully reciprocated. By judicious elections, the society was gradually increased, and its utility extended.*

In 1785, corresponding and advising committees† were appointed for the different counties; in several of which,‡ associations were formed, for professional conversation, reading dissertations, and communicating useful cases, which were afterward transmitted to the committees.

In 1789 the society was authorized to point out and describe such a mode of medical instruction, as might be deemed requisite for candidates, previous to examination.§ It was then determined that every pupil should have a competent knowledge of Greek, Latin, the principles of geometry, and experimental philosophy; and that the period of instruction should in no case be less than three years, with attendance on the practice of a respectable physician.‖ Publications are made triennially of authors to be studied, by which the most valuable modern productions are extensively circulated.¶ The censors** meet for examining and licensing candidates once in four

* See note D. † See note E.

‡ Middlesex, Worcester, Bristol, and Kennebeck.

§ See act of the G. Court, Feb. 10.

‖ No candidate can be admitted to an examination after June 4, 1813, unless he has studied with, and attended the practice of a fellow or honorary member, of the society. By Laws, p. 18, 19.

¶ See note F. ** See note G.

months. The first licentiate was admitted in 1782, since which eighty others have received letters testimonial of their qualifications to practice.*

By an act of the legislature in 1803, the state of the society was essentially changed.† The number of fellows, originally limited to seventy, may embrace all respectable practitioners in physic and surgery, resident in the state, who, in the election of counsellors, can vote by proxy. The present number is two hundred and four,‡ exclusive of honorary members. An annual meeting is holden in June, to receive a report of the counsellors for the preceding year; revise and amend the by laws; elect counsellors; read and consider communications; attend to a discourse, which must be placed on the files of the society; and transact any other business, conducive to the welfare of the institution, or the interests of medical science.

The number of counsellors, whose former duty was only to prepare business for the society, is greatly increased.§ They supersede the county committees, and their authority extends to elect fellows, and honorary members; appoint the officers of the corporation; receive, examine, and answer letters and communications; establish subordinate societies, with censors if they think proper; and perform other services, as required by the by laws. They meet three times in a year, and submit their records and proceedings to the society, at the annual meeting.

* See note H.
† March 8. See Act.
‡ See note I.
§ See note K.

District societies report to the counsellors all cases of importance, and are subject to the regulations of the society.*

In 1790, the first number of medical papers, containing a selection of important communications, was published; but for the want of funds,† a second did not appear till 1806. A third was printed in 1808, completing the first volume; which, with a fourth number, being the first part of the second volume in 1809, has been largely distributed, and contain a useful variety of theoretical and practical observations. There are ample materials for further publication, which will probably appear by the next anniversary.

A Pharmacopæia‡ of the society, prepared by James Jackson and John Collins Warren, was published in 1808. The plan of the Edingburgh college was pursued in this valuable work, which being designed to introduce the modern nomenclature, establish uniformity in the preparation of medicines, and in the prescriptions of physicians, was readily adopted, and is in general use. The American New Dispensatory, just published by James Thacher, was

* The district societies are in Boston, comprehending Brookline, Cambridge, Charlestown, Dorchester, Malden, Medford, and Roxbury. Also in the counties of Essex, Worcester, Berkshire, Lincoln, and Cumberland. The Worcester district has censors, viz. Oliver Fiske, Jona. Osgood, Thomas Babbit, Abraham Haskell, and Austin Flint.

† The expenses of the society are defrayed by an annual tax on the fellows, and by a moderate assessment on licentiates.

‡ This was designed as a standard work, for the United States, and circular letters were sent to the different medical institutions previous to its publication.

submitted to a committee* of the society, in whose report it is represented as a judicious performance.

The discourses† are by Isaac Rand, in 1804, on on phthisis pulmonalis, and the warm bath—John Warren, in 1805, on the use and effect of mercury —Joshua Fisher, in 1806, on narcotic substances—Thomas Welsh, in 1807, on heat and cold, as agents on the human body—John Brooks, in 1808, on pulmonic inflammation—and Aaron Dexter, in 1809, on diseases of the joints.

At the late meetings of the counsellors, committees‡ were appointed, to make inquiry relating to a spotted fever, so called, then prevailing in the county of Worcester ; and circular letters were sent to the physicians in that quarter, whose reports to the society, and publications in the gazettes, with the observations and minute dissections in this town, and its vicinity, have furnished an accurate history,§ and the modes of treatment, in this formidable disease.‖

* John Warren, Aaron Dexter, Josiah Bartlett.

† Those by Rand and Fisher are published.

‡ Feb. 4. Oliver Fiske, Austin Flint, Wm. Payne.—March 27, Thomas Welsh, James Jackson, John C. Warren.

§ See Worcester and Boston papers, March, April, May, 1810, and files of the Medical Society.

Since the reading of this discourse, a minute and interesting report of the committee is published.

See Med. Communications, Vol. II. p. 111.

‖ It is generally agreed, that this disorder, which excited much alarm, is not contagious. It is the opinion of accurate observers, that though uncommon it is not new; and that it bears a great resemblance to typhus gravior, with a peculiar affection of the brain.

THE public estimation of this society is sufficiently manifested in the constant patronage of government, whose recent liberality in the grant of a township of land* to extend its usefulness, demands our most respectful acknowledgemnts.

THE important medical school at Harvard University, hastened in its progress by the salutary effects of the anatomical lectures at Boston, was founded on a generous bequest, in 1770, by Ezekiel Hersey; whose laudable example was imitated by his widow, and also by Abner Hersey, John Cummings, and William Erving.†

THE institution provides a regular system of instruction, with demonstrations and experiments. The use of the college library is allowed to medical students; who, having read two years with a reputable practitioner, and attended two courses of lectures in the respective branches, may at the expiration of another year, by passing a public examination, and delivering and defending a dissertation, receive the degree of bachelor in medicine. But such as have not enjoyed a college education, must evince an acquaintance with Latin, experimental philosophy, and mathematics. Bachelors of seven years, standing, who have been that time in practice, may receive a doctor's degree, after a public examina-

* See Resolve Feb. 10, 1810.

† The sum bequeathed by these persons, three of whom were physicians, was 4000 pounds. Ezekiel Hersey died 1770, aged 60; Abner Hersey in 1786, aged 68; and John Cummings in 1788, aged 61. William Erving, who was an officer in the British army, died in 1791, aged 56.

tion by the professors ; but they must deliver and defend, a Latin and an English dissertation on medical subjects.

In 1783, John Warren was installed professor of anatomy and surgery ; Benjamin Waterhouse, of the theory and practice of physic ; and Aaron Dexter, of chemistry and materia medica. In 1809, John Collins Warren and John Gorham, were respectively inaugurated, adjunct professors of anatomy and chemistry.

The anatomical museum is enriched by the liberality of John Nickols, a counsellor at law in England, with a valuable collection of natural preparations, by his father, who is numbered with those celebrated anatomists, that introduced the art of injection ; also of Elias H. Derby, of Salem, with curious imitations in wax, from a nunnery in Italy. The chemical laboratory is fully competent to the purposes of instruction.

The lectures which commence in October have been continued without interruption. Medical honours are conferred at the public commencements ; of which, from the formation of the institution, forty-five have received the degree of bachelor, and thirty the degree of doctor in medicine.* The dissertations which have been published on these occasions, are by Peter de Sales la Terriere, in 1789, on the puerperal fever ; William Pearson, in 1789, on mixed fever ; William Dix, in 1795, on dropsy ;

* See note L.

Frederick May, in 1795, on the lock jaw; John Fleet, in 1795, on surgical operations; Samuel Brown, in 1797, on the malignant bilious fever; William Ingalls, in 1801, on the bursal abscess; and James Jackson, in 1809, on the Brunonian system.

A COURSE of lectures on natural history, occasionally interspersed with remarks on mineralogy, has been delivered annually, from 1788, by Benjamin Waterhouse, at which the students in medicine were permitted to attend. In 1806, William D. Peck was inducted as professor in that department; and the establishment of a botanic garden at Cambridge, will, by a cultivation of foreign and indigenous articles, enrich the materia medica, and improve pharmacy.*

IN 1800, a valuable collection of medical and anatomical works and engravings, were presented to the university by Ward Nicholas Boylston, with permanent arrangements for its enlargement. The number of books at this time exceeds four hundred, the use of which is extended to the fellows of the Medical Society, residing within ten miles of Cambridge. He also in 1803 established† an annual complimentary premium, to the authors of the best performances, on such medical, anatomical, physiological, or

* A subscription of $30,000 was made, and two townships of eastern land were granted, for the purchase of land, and other expenses of this establishment. It is under the inspection of the professor of natural history, and a board of trustees, of whom the president of the Medical Society is ex officio a member.

† See bond to the college, Jan. 20, 1803.

chemical subjects, as are proposed by a committee,* appointed by the president and fellows of the university. The approved dissertations† are, on cholera infantum, and on dysentery, by James Mann, in 1804 and 1806—On mortification, on the the structure and physiology of the skin, and on biliary concretions, by George Cheyne Shattuck, in 1806 and 1807—On cancer, and the best mode of extirpation, by Daniel Newcomb, in 1808, whose premature death is justly lamented—On cynanche maligna, and on phthisis pulmonalis, by Jacob Bigelow, in 1809—And on complaints in the breasts of nursing women, by Thomas Sewall, in 1809 : For each of which premiums were adjudged, agreeable to the design of the founder,‡ which is well adapted to inspire a laudable emulation, and improve the medical profession.

Willingly would I offer a grateful tribute of respect to this distinguished patron, and liberal benefactor ; but as many others, by whose talents and exertions the boundaries of medical science have been successfully extended, and to whom I am in-

* The committee are Lemuel Hayward, John Warren, Thomas Welsh, Aaron Dexter, John Brooks, Josiah Bartlett, William Spooner, John Fleet, and James Jackson. The persons who have served are, Edward A. Holyoke, James Lloyd, Cotton Tufts, Samuel Danforth, Isaac Rand, Joshua Fisher, Benjamin Waterhouse, and William Eustis.

† The dissertations on cholera, by Mann ; and the three by Shattuck, are published.

‡ The premiums are adjudged without a knowledge of the author. Every dissertation has a device or motto, with a corresponding sealed letter, containing the author's name ; and those only are opened, which are successful.

debted for materials in the present sketch, are still alive, I must leave the pleasing duty to a future, we hope a far distant occasion, and an abler eulogist; nor will I wound the delicacy of some who hear me, by commending the patriotism and valour, or recognizing the civil distinctions, of our cotemporaries in the healing art.

At the commencement of the medical institution, a question arose, respecting its interference with the charter rights of the Medical Society. On one side it was supposed, that positive legal power to examine and license candidates for practice, implied an exclusive right; on the other, that the acknowledged privileges and usages of universities, were sufficient authority to qualify students, and confer professional degrees. Repeated conferences were held by committees of the society, with the corporation and professors of the college, which terminated satisfactorily. A diploma from the university, or letters testimonial from the society, are alike considered as entitling practitioners of three years' standing to fellowship; and all bachelors, or licentiates, in medicine, may claim* the use of the society's library.

There were published, in 1786, the first part of a synopsis of a course of lectures on the theory and practice of medicine; in 1792, a discourse on the rise, progress and present state of medicine; in 1804, a lecture on the evil tendency of tobacco, and the pernicious effects of ardent and vinous spirits on

* See act of the General Court, March 8, 1803.

young persons, by Benjamin Waterhouse; in 1803, a pamphlet on the use of the vitriolic acid, in ulcerated sore throat, by Thomas Bulfinch;* and in 1799, a volume on the plague and yellow fever, by James Tytler,† a native of Scotland, who is spoken of as a man of extensive erudition, but imprudent. He immigrated to this country in 1796, and resided in obscurity at Salem.

It has been remarked that more professional knowledge is at this time attainable in a single season, than was known to Hippocrates, Galen, and their successors till the beginning of the eighteenth century. A case of fistula in ano, now considered as a simple disease, and often cured by our youngest practitioners, was in 1686, nearly 70 years after the settlement of Massachusetts, so formidable and dangerous, that Felix a surgeon, and Fagon a consulting physician, were rewarded with forty thousand dollars, for a successful operation on Lewis the fourteenth of France, in consequence of which a national thanksgiving was religiously observed.‡

At this period also, the royal touch was considered as the only cure in scrofula. In May, 1682, notice was given in a London gazette, that as the weather was growing warm, his majesty would not touch any more for the king's evil, till after Michaelmas; and in 1687, an indigent citizen of New Hampshire, having tried every other means without

* Died 1804, aged 73.

† Drowned 1804, aged 59.

‡ See Ramsay's Review, 1800. p. 10. 12.

effect, petitioned the Legislature for aid to transport him to England, for that efficacious remedy.*

The Massachusetts Humane Society, which had been founded five years, upon the plan of similar associations in Europe,† was incorporated in 1791, for the purposes of restoring suspended animation, preserving human life, and alleviating its miseries. The number of members, which at that time was 189, has increased to 587; of whom many are of the medical faculty, whose professional attendance is rendered gratis, in promoting the immediate views of the institution. It is governed by a president‡ and board of trustees. Public discourses, all of which are published, are delivered at the annual meetings of the society, and the physicians who have officiated on these occasions are, Benjamin Waterhouse, in 1790; John Bartlett, in 1792; John Brooks, in 1795; John Fleet, in 1797; Isaac Hurd, in 1799; John C. Howard, in 1804; and Thomas Danforth, in 1808; these, with the alternate performances of the clergy, are correct specimens of talents and piety.

In 1799, a complimentary premium was offered by the trustees, for the best communication relating to yellow fever in the United States, which, in 1800, was adjudged to Samuel Brown, who died soon after, leaving an honourable testimony§ of early acquirements and industry.

* See Belknap's Hist. Appendix, Vol. I. p. 81.

† The first institution of this kind was at Amsterdam, in 1767.

‡ The president is John Warren.

§ See treatise on yellow fever, 1800.

Discreet and concise directions for the recovery of persons apparently dead, from drowning, strangling, suffocation, electricity, or the use of poisons; judicious rewards to such as have jeoparded their lives for the preservation of others; and furnishing convenient shelters, on our sea coast, for ship wrecked mariners, have extensively diffused the benefits of this benevolent institution.

The Merrimack Humane Society at Newburyport, instituted for the same purposes, was incorporated in 1804.*

The celebrated discovery of vaccination by Edward Jenner, a physician of Berkley in Great Britain, was transmitted to this state in 1799. His observations were succeeded by the comments of George Pearson, and a series of experiments, by William Woodville, the former a physician of St. George's, and the latter of the small pox hospitals, in London. A Boston newspaper† furnishes our earliest information on this subject, by Benjamin Waterhouse, who in 1800, 1802, and 1810 published historical and practical treatises on the kine pock, in which his indefatigable exertions for its extension, to every portion of our country,‡ are minutely detailed. In July 1800, he procured matter from Bristol in England, with which his son was the first person inoculated in the United States. From him several others were

* The president is Micajah Sawyer.

† See Columbian Centinel, March 12, 1799, by Benjamin Russell, who has inserted many subsequent communications, relating to vaccination.

‡ See Part II. 1802, p. 37.

vaccinated, some of whom were tested by variolous infection*. This laudable experiment, raised the credit of a discovery, which like every other novelty, was strenuously advocated by some, but disregarded by others.

In the following September, James Jackson, who had attended vaccination with Woodville, brought matter from London, which did not retain its efficacy, but he was soon after supplied by Thomas Manning, who obtained it from Europe. Additional publications appeared, and the subject was carefully examined. Early in 1801 the medical society directed an application to the vaccine institution in England for matter,† and the most respectable practitioners, convinced of its prophylactic efficacy, engaged in its propagation.

About this time the small pox became general in Marblehead,‡ by mistaking a variolous for a vaccine patient, and was attended with serious consequences. A committee of the medical society was appointed to visit that place, and collect facts, but two of the members could not attend at the time proposed, and a communication from the physicians, rendered a second attempt unnecessary.§ This business connected with other circumstances, produced a misunderstanding between Benjamin Waterhouse, who was one of the committee, and the society, which

* See Waterhouse on Kine Pock, 1800. p. 18. 25. 1810. p. 22.

† See Records Med. Soc.

‡ A sea port town, 5660 inhabitants.

§ See Council Records Med. Soc.

occasioned an appeal to the public,* but without essential advantages.

In 1802 a most satisfactory experiment was conducted by the board of health,† of the metropolis, whose unremitted exertions for the prevention of contagious diseases, with salutary regulations to preserve cleanliness, and accommodate the citizens, entitle them to commendation. Nineteen persons were vaccinated at the health office, and passed through the disease, after which they were repeatedly inoculated with small pox, and exposed to its contagion for twenty days, without receiving it. An official account of this transaction was submitted to the public.‡

A vaccine institution was formed in 1803, by the junior physicians of Boston, for gratuitous inoculation of the indigent, and was continued whilst patients presented themselves to receive it.

In 1808 a committee§ was appointed by the counsellors of the medical society, to obtain further evidence of this disease as a preventive of small pox, and report the best method of conducting the practice. A copious and interesting statement was made to the society, at the annual meeting, which is pub-

* See Columbian Centinel, Ap. 19, June 18, 1806. There are various controversies in the newspapers, upon medical subjects, which are not particularly noticed, from a belief, that their tendency is rather to amuse the public, than benefit the parties, or dignify the profession.

† Thomas Welsh is physician to the board, and has sustained that office eleven years.

‡ See note M.

§ John Warren, Aaron Dexter, James Jackson, John C. Warren.

lished in their communications.* In 1809 the fellows were specially enjoined to discover if the disorder exists in the cows of this country, and several instances are related to establish the fact.†

The town of Milton was the first in a corporate capacity to extend the benefits of vaccination to its inhabitants. Three hundred and thirty-seven persons, of all ages and conditions, more than a fourth of the population, were inoculated in a short period, by Amos Holbrook; twelve of whom were afterward tested with small pox. The proceedings are minutely detailed, by a committee who superintended the business.‡ About this time fifteen hundred were vaccinated on a similar plan, at New Bedford,§ under the direction of Benjamin Waterhouse.

At the last session of the General Court,‖ the respective towns in the state were directed to appoint committees, to superintend, and were authorized to raise monies annually, to defray the expenses of vaccination, which if properly conducted, will essentially conduce to the public welfare, as many individuals must eventually suffer by the uncertain and injudicious practice of inoculating each other,¶ without the judgment of experienced practitioners.

* Vol. I. Appendix to No. 2. part I.

† See Files of Med. Society.

‡ See Pamphlet, Nov. 1809.

§ See New Bedford Mercury, Oct. 1809. This town has 3300 inhabitants.

‖ See Act, Mar. 10, 1810.

¶ The writer has freqnently examined cases of this kind, which he supposed to be spurious.

The Marine Hospital* of the United States, established at Charlestown in 1803, was opened at Fort Independence in 1799, and is supported by a monthly assessment on seamen. Its object is the reception of sick or disabled officers and sailors, in the service of the public or of merchants.† This important accommodation is well adapted for an observance of the diseases of foreign climates, and the casualties to which this valuable class of society are peculiarly liable.

The Boston Alms House,‡ from the nature of its establishment, and the condition of its inhabitants, may be justly considered as combining, with the kind offices of humanity to meritorious objects, and exemplary reproof to idleness and vice, an improvement of the healing art. The annual appointment of a physician of approved acquirements, affords an extensive acquaintance with the complaints of venerable age, respected indigence, intemperance, and unguarded seduction; whilst gratuitous consultations, in important cases, are an honourable source of instruction to candidates for practice. Clinical lectures were delivered at this place in 1809, by James Jackson, which, with those on anatomy and surgery, by John C. Warren, and on chemistry, by John Gorham, at their respective apartments in this

* The surgeon is David Townsend. His predecessors were Benjamin Waterhouse in 1808, Charles Jarvis in 1804, and Thomas Welsh in 1799. See note N.

† See Act of Congress, July 16, 1798.

‡ Thomas J. Parker is Physician. See note O.

metropolis, will if liberally encouraged, afford distinguished advantages to students in medicine.

PROPOSALS were made about two years ago, for the delivery of anatomical lectures, at Fryburg in the district of Maine, by Alexander Ramsay, a native of Scotland, and for medical lectures at Plymouth, by James Thacher; but we have no information of their success.

THERE are many institutions in our sea ports, and other populous towns, evincive of a laudable attention to the cause of benevolence, particularly the Boston Dispensary, incorporated in 1801, and conducted by a board of managers. Physicians* are appointed to attend indigent persons at their own houses, who are also supplied with medicines and refreshments at the expense of the corporation.

AT the State Prison,† erected in Charlestown in 1805, is an appropriate medical establishment, which affords an acquaintance with the diseases peculiar to such institutions; and the beneficial effect, of changes in the human body, from excess and idleness, to temperance and labour.

THE bathing houses in Boston, Salem, and else where, are so highly important in the prevention and cure of diseases, that we may justly recommend their extension; and the advantages of such establishments, have been so ably delineated on a former oc-

* Consulting Physicians elected 1809, James Lloyd, and Isaac Rand. Visiting Physicians, Asa Bullard, Cyrus Perkins, and Horace Bean.

† The Physician is Josiah Bartlett. See note P.

casion,* as to render additional observations superfluous.

To combine, as far as possible, the various means of instruction, and unite the faculty in so laudable a design, is a most important object. At our last annual meeting a committee† was appointed, to devise any means in their power for the establishment or promotion of a medical school in the metropolis. The numerous advantages of a familiar intercourse, and of the mutual professional labours, of a populous city are obvious; I shall therefore only remark, that the procurement of a suitable building for the accommodation of the society, and of teachers in the different branches, with the united exertions of the medical professors of the university, the censors of this society, the physicians of our public institutions, and of individuals in their respective employments, would open a field for instruction and improvement, enabling the commonwealth of Massachusetts, notwithstanding the imbecility of her infancy, to maintain a vigorous manhood, and with the most distinguished of her sister states, to progress in honourable age, advancing the healing art.

About forty years have elapsed, since the celebrated works of Cullen, founded on the hypothesis

* See discourse by Isaac Rand, 1804. Economical bathing places may be prepared at distilleries, by appartments near the worm tubs; from the lower and upper parts of which (the former furnishing cold, and the latter hot water) tubes may lead to the bathing tubs. An accommodation of this kind, prepared by Aaron Putnam, formerly a practitioner in medicine, is at the distillery of Matthew Bridge in Charlestown.

† John Warren, Joshua Fisher, John Brooks, Josiah Bartlett, Aaron Dexter.

of Hoffman, a cotemporary of Boerhaave, were introduced, and extensively circulated; and though succeeded by the ingenious theories of Brown, Darwin, and Rush, they still retain an important rank in our schools of medicine. To enumerate the valuable practical productions of others, or display the talents and industry, successfully exerted within that period, in cultivating and improving the various branches of our profession, would exceed the limits of a single dissertation. I can only name the Bells and Cooper, in anatomy, physiology, and surgery; Denman and Hamilton, in obstetricks; Priestly and Davy, in chemistry; Aikin and Murray, in materia medica; and must refer you to the valuable libraries of the university, the Massachusetts medical society, the district societies, and the associated physicians of Boston.* These, with professional books belonging to the Academy of Arts and Sciences, the historical society instituted in 1791 for the collection and preservation of useful information, the Athæneum established in 1807, an instructive resort for the scholar or philosopher, and with the extensive collections of distinguished practitioners, in every part of the state, afford an unlimited supply of medical literature, from the most remote antiquity to the present time.

TWENTY-SEVEN foreign medical works have been reprinted in Massachusetts,* sixteen of which

* The physicians of Boston, have a code of regulations, for their conduct to each other, which is worthy of imitation. See Boston medical police, March, 1808.

* See note Q.

were either in whole, or in connection with others, by Isaiah Thomas ; who remarks, that the United states have afforded editions of most of the medical writings that have a currency in this country.

From about the middle of the seventeenth century, there are many of our medical faculty, in addition to those whom I have had occasion to mention, respectfully noticed by biographical writers,* and in the gazettes† of their respective times. With an intention to particularize, I attempted a review of obituary notices ; but though the task was too arduous for my necessary avocations, and too delicate for a just discrimination, I discovered in every period the names of eminent physicians and surgeons, who were highly honoured, as philosophers, civilians, magistrates, orators, and warriors. Animated by their example, may we assiduously improve our more extensive privileges, and by a grateful recollection of their labours and perseverance, may we and our successors venerate their memories, and imitate their virtues.

* See Biographical and Historical Dictionaries, by John Eliot, and by William Allen ; which are of great value to inquirers for the distinguished characters of our country.

† See files of newspapers, at the Hist. Society.

☞The note page 249, respecting the Pharmacopœia, is incorrect, and should read thus :

After its publication, a copy was sent to the different Medical Societies, with a circular letter, requesting them to examine the work, consider in what respects it needed alterations or amendments, and expressing a desire that some means might be devised, to establish a standard work for the United States.

BILL OF MORTALITY,

FOR AMHERST, MASSACHUSETTS, FOR A. D. 1809.

BY DR. ROBERT CUTLER.

COMPLAINTS. AGE.	Males. . .	Females. .	January. . .	February. .	March. . .	April. . . .	May.	June.	July.	August. . .	September	October. . .	November	December	Total. . . .
Apoplexy, 80 y.	1										1				1
Atrophia, 5 m. 54 y. 84 y. 55 y.	2	2		1			1			2					4
Cynanche trachealis, 4 y.	1													1	1
Convulsions, 23 y. 3 d.	1		1	1											2
Consumption, 30 y. 21, 39, 35, 19 years	4	1				1	2						1	1	5
Dysentery, 16 m. 3 y. 18 m.	2	1								1	1		1		3
Dropsy, 50 y.		1											1		1
Fever catarrhal, 2 y.		1			1										1
Fever hectic, 3 y.	1		1												1
Fever inflammatory, 6 y.	1										1				1
Fever puerperal, 39 y.		1			1										1
Fever typhus, 3 y. 10 m. 16 y.	2	1			1	1							1		3
Nephritis, 78 y.	1									1					1
Spina bifida, 6 d.		1								1					1
	16	10	2	2	3	2	3	0	0	5	3	0	4	2	26

Births, { Males, . 30 / Females, 34 } Total, 64

Marriages, ... 16

Amherst, a town in the county of Hampshire, eight miles from Northampton, situated in the lat. of Boston, containing about 1600 inhabitants.

BILL OF MORTALITY,

FOR AMHERST, MASSACHUSETTS, FOR A. D. 1810.

BY DR. ROBERT CUTLER.

COMPLAINTS. AGE.	Males	Females	January	February	March	April	May	June	July	August	September	October	November	December	Total
Atrophia, 67 years		1				1									1
Cholera, 5 months. 5 m.	1	1							2						2
Convulsions, 3 w. 2 y. 6 m. 22 m.	1	3			2		1		1						4
Fever pulmonic, 12 y.	1					1									1
Fever typhus, 4 y. 66 y.	1	1								1		1			2
Suicide, 58 y.	1						1								1
Casualty, Overlaid, 1 m. by Opium, 8 m. Scalded, 9 m.	3			1							2				3
Births, Males, 36 / Females, 30 — Total, 66	8	6	0	1	2	2	2	0	3	1	2	1	0	0	14

Marriages, ... 14

BILL OF MORTALITY,

FOR AMHERST, MASSACHUSETTS, A. D. FOR 1811.

BY DR. ROBERT CUTLER.

COMPLAINTS. AGE.	Males	Females	January	February	March	April	May	June	July	August	September	October	November	December	Total
Atrophia, 2 years. 5 months. 2 y. 5 y.	2	2		1			1					1	1		4
Asthma spasmodic, 57 y.	1							1							1
Croup, 18 m.		1											1		1
Dysentery, 4 y.	1									1					1
Enteritis, 6 m. 18 m.		2				1	1								2
Fever catarrhal, 3 y.		1						1							1
Fever typhus, 15 y.	1												1		1
Hemiplegia, 84 y.		1								1					1
Hydrocephalus internus, 14 m.		1			1						1				1
Liver scirrhus, 41 y.	1														1
Old age, 86 y.		1	1												1
Palsy, 4 y. 85 y. 52 y.	2	1		1	1					1					3
Casualty, 8 y. 4 m.	2					1				1					2
Total	10	10	1	2	2	2	2	2	0	4	1	1	3	0	20

Births, { Males, . . 36 / Females, 34 } Total, 70
Still born, 4

Marriages, ... 11

BILL OF MORTALITY,

FOR AMHERST, MASSACHUSETTS, FOR A. D. 1812.

BY DR. ISAAC G. CUTLER.

COMPLAINTS. AGE.	Males	Females	January	February	March	April	May	June	July	August	September	October	November	December	Total
Abscess of the lungs, 77 years		1						1							1
Apoplexy, 79 y. 83 y.	1	1			1			1							2
Atrophia, 89 y.		1							1						1
Consumption, 19 y.		1	1												1
Croup, 2 y.		1							1						1
Dropsy, 38 y. 78 y.	2				1	1									2
Erysipelas, 4 months	1										1				1
Fever hectic, 5 y.		1							1						1
Fever puerperal, 35 y.		1	1												1
Fits, 1 day		1				1									1
Old age, 80 y.		1				1									1
Organic affections of the heart, 69 y.		1								1					1
Palsy, 69 y.		1	1												1
Ulcer carious, 12 y.	1										1				1
Total	5	11	3	0	2	3	0	2	3	1	2	0	0	0	16

Births, { Males, . . 37 / Females, 33 } Total, 70
Still born, 4

Marriages, ... 12

Number of Inhabitants according to the last Census, 1469.

ARTICLE XIII.

ON THE USE OF

SULPHATE OF COPPER

IN

UTERINE HÆMORRHAGE.

BY JOSHUA FISHER, M. D. V. PRES. M. M. S.

UTERINE hæmorrhage, and menorrhagia, are not unfrequently among our most alarming and most obstinate diseases. Having often witnessed the inefficacy of the medicines commonly used in their cure, it has been my object to discover some remedy, or mode of treatment, on which I could, with more confidence, rely. For this purpose, among other things, I have tried the sulphate of copper in substance, variously combined with astringent gums, &c. but I generally found it more disposed to affect the first passages than to answer the purpose for which it was given. From a hint which I met with in the tenth volume of the medical commentaries, I was induced to think that a solution of it, in proof spirits, might succeed; and it is with pleasure I can assert, that, in the course of many years practice, I have found that in cases of hæmorrhage attending pregnancy and parturition, and in cases of menorrhagia

from debility, it has produced every good effect that could reasonably be expected from a restringent styptic medicine, and I have known it take effect in a very alarming case as soon as it entered the stomach.

The sulphate of copper seems rather more soluble, when freed from its water of crystalization; heat enables a pint of spirits to dissolve more than a drachm of it: but it will not remain permanently suspended. By the addition of an agreeable aromatic, it is less apt to nauseate the stomach. I have therefore made use of the following formula:—

Take Sulphate of copper calcined, ʒi
Bark of cassia pulverized, ʒii
Proof spirits, ℔i

Simmer them a quarter of an hour in a glass vessel; put the whole into a bottle, and decant for use. Mean dose forty drops.

In chronic cases, two or three doses in a day may suffice: in urgent cases, it will be necessary to give a dose every hour, or as much as the stomach of the patient can bear; and should she happen to puke, no danger is to be apprehended. In all cases, attended with pain, so much opium should be joined, as to produce perfect ease.

Many cases of these *profluvia* of the chronic kind, and some of those which may be considered as acute, arise from peritoneal inflammation, which, sometimes, is not easily discovered. This inflammation more commonly affects the *ovaria*, sometimes the liver, *uterus*, or other organs. In these cases, this prepara-

tion of copper will be of great use, occasionally, in restraining the discharge, and restoring the tone; but for the removal of the inflammatory diathesis, we must depend on mercurials, assisted, if necessary, by blisters.

In *leucorrhœa*, I have used this medicine with much advantage, in cases that were slight, or recent; but in those of a different character, there is local inflammation, or morbid action, which generally, will not yield to this class of medicine alone, when taken into the stomach.

I have used this preparation in most kinds of hæmorrhage; but have not known it afford much relief, except in hæmorrhoidal discharges; and I do not think it so good, even in those cases, as the sulphate in substance, especially, when joined with calomel.

As a general tonic, it has sometimes succeeded extremely well, but more frequently it has not fully answered my wishes.

Like other preparations of copper, it sometimes proves a very good diuretic. In a case of a long continued debility and *menorrhagia*, succeeded by dropsy, this medicine alone appeared to answer every intention of cure.

ARTICLE XIV.

OBSERVATIONS UPON MENORRHAGIA, AND LEUCORRHŒA;

AND THE BENEFICIAL EMPLOYMENT OF BLISTERS, ACETITE OF LEAD, AND THE SUBMURIATE OF MERCURY IN THOSE DISEASES.

BY DR. JAMES MANN.

MENORRHAGIA is defined to be "an immoderate flow of blood from the same sources from which the menses proceed."

MENSTRUATION has been considered immoderate, and morbid, when the discharges are more than usual with the same person. Particularly, when these evacuations are accompanied with "a pallid countenance, a weak pulse, an unusual debility, a hurried breathing upon exercise, a pain in the back, cold extremities, swelled feet, anorexia, palpitations of the heart, and syncope."

MENORRHAGIA is frequently followed by Leucorrhœa; and, sometimes, these diseases alternate with each other.

THESE diseases sometimes come upon young women, but more frequently upon women past thirty-five years of age, who have borne children. It admits of some doubt, whether it is practically useful to consider hœmorrhagia uteri as a distinct

disease from menorrhagia, except when it accompanies or follows parturition, and abortion.

It has fallen to my lot, in the course of many years practice, to observe a number of obstinate cases of menorrhagia; in which, the most approved treatments have been diligently pursued. In some instances, the disease has appeared to yield to the remedies usually employed by physicians; while, in others, it has perversely resisted all common medicines.

During the year 1805, my attendance was required, in the case of an unmarried woman aged twenty-four years, who had been afflicted with a menorrhagia, without any intermission, more than six months. Extreme delicacy had induced her to conceal her situation from her friends. Although the evacuations had never been profuse at any one time, yet, from their long continuance, much debility is induced. She has small quick pulse, rigors and flushes, in low degrees, daily alternating with each other, dyspepsia and anorexia. These are accompanied with pains and costiveness. A cathartic is administered, not only to quicken the peristaltic motion of the intestines; but, with a view to diminish a morbid evacuation, by promoting a natural one. Small emetics of ipecacuanha were then directed to be administered, for the purpose of equalizing the general excitability; thereby to lessen the diseased action in the uterine vessels. The success which had sometimes followed a similar practice, led me to expect it in the present case. I was however

disappointed. After the employment of emetics, the usual course of astringents, bark, alum, cold and saturnine injections, vitriolated zinc, martial preparations, were, in succession administered, during six weeks, without mitigating the disease. Despairing of success, from the employment of remedies in common use, the mind naturally resorted to untried medicine; when it occurred, that some years past, a case of obstinate diabetes was cured by the employment of repeated blisters, upon the region of the kidneys. The well known effects of cantharides upon the urinary organs, and the proximity of the uterus to these, encouraged me to employ, in the present case of menorrhagia, a blister upon the os sacrum. Its beneficial effect was immediate. No sooner did the blister execute its appropriate office, than the menorrhagia ceased, the first time for almost eight months. The blisters were repeated. In this state of disease, tonics, viz. the bark, and some of the martial preparations were employed with benefit. These, aided by a restorative diet, soon reduced to order the deranged state of the body, and restored to the patient, her accustomed health.

After having experienced the happy effects of blisters, in the above recited case, they have been invariably resorted to in menorrhagia, and, in but one instance, among several cases, have they disappointed me, so as not to perceive some benefit from their use.

In the fifth volume second hexade of the Medical Repository, is a communication made by Thomas

Ewell, D. M. to Doct. Miller; wherein, an account of the internal exhibition of the acetite of lead, in several diseases, is related; and, particularly, with success, in a case of menorrhagia. The frequent disappointment, I have experienced, while employing common remedies, to cure this disease with expedition, determined me to employ the acetite of lead the first opportunity which might present. During the year 1809, several cases have been treated, under my observation, with this last medicine. The result has been such, as to convince me of its superior restrictive powers in this disease. It was employed in two cases, which had been of long continuance, and wherein the usual remedies had been assiduously administered without any benefit.

Case 1st. Mrs. B.—— aged 48 years, had been subjected to a menorrhagia more than twelve months; at first, it had been profuse. The usual remedies had been, unremittedly, employed, from the commencement of the complaint, to the present period, by her attending physician, without procuring any abatement of the disease.

August 11th. She is pallid, emaciated, much debilitated, being confined wholly to bed; is destitute of appetite; has severe pains about the region of the uterus. Menorrhagia, and Leucorrhœa alternate with each other. A blister, upon the os sacrum, is applied. Two grains of acetite of lead, combined with half a grain of calomel, are directed to be administered night and morning. Anodynes are to be given, at

discretion, when excessive pain demands their employment. The calomel is added to the acetite of lead, in consequence of its well known absorbent effect, with respect to the venous, and lymphatic system of vessels.

17th. The general symptoms of the disease are abated. The stimulus of the blister is continued, by dressing it with a plaster armed with cantharides. The acetite of lead, and calomel are continued, as first directed.

Sept. 1st. There is a mitigation of menorrhagia, and leucorrhœa. Pain about the region of the uterus is removed, natural rest, and appetite are restored. In consequence of some soreness of the mouth, the calomel is omitted, and the acetite of lead continued by itself. A tea-spoonful of the compound tincture of the bark is administered every fourth hour.

12th. All the symptoms of disease are removed, and a restoration to health is fast progressing.

Case 2d.—Mrs. T———, aged 43 years, is in a deplorable situation. Leucorrhœal evacuations attend her in profusion; these are very offensive; the countenance assumes a deathlike appearance; the lower extremities are swelled, and oedematous; severe pains are experienced through the loins, and their vicinity. These are accompanied with dyspepsia, and anorexia, faintness, and syncope. The following is a concise history of her case. About eighteen months past, this patient had been attacked with profuse evacuations of blood, without any known cause. After

having continued for some time, they gradually abated, and become paler, until they lost their florid colour. From her own account of the treatment pursued, it appears that many articles were administered, without any apparent benefit. The employment of the bark, astringents, bitters, and the martial preparations, afforded no permanent relief; but strength, and health, gradually declined. A cathartic to obviate costiveness is administered. A large blister upon the os sacrum is applied. Two grains of acetite of lead, and one grain of calomel are directed night and morning; also the compound tincture of lavender, to obviate faintness; and one grain of opium, at night, to procure rest. At the end of one week, the second visit was made; when, I am informed, that the pain through the loins had mitigated, and the discharges had abated, immediately upon the application of the blister; the vesicating plaster is removed; the acetite of lead, and calomel are continued, with an injection of a solution of the acetite of lead, up the vagina.

After the expiration of fourteen days, the third visit is made; when the patient is in better spirits, cheered by the prospect of a recovery from a painful, and loathful disease, under which she had so long succumbed. Her mouth is sore by the employment of the calomel, which I am willing she should impute to any cause besides its true one. The calomel is of course omitted, and the acetite of lead continued. The compound tincture of the bark is

now directed, also wine, and a supporting diet accommodated to the state of the stomach. The last prescriptions were continued for a few days, when, a small tea-spoonful of crocus martis (oxidum ferri rubrum) was directed twice in twenty-four hours. Since which, this patient has recovered her health; every symptom of disease having disappeared.

Case 3d.—A woman between thirty and forty years of age, has been three days subjected to a profuse menorrhagia; which is accompanied with pain through the region of the uterus, faintness, and languor. A blister is applied upon the os sacrum; two grains of acetite of lead, with one grain of opium is administered every eighth hour. The menorrhagia was suppressed, within twenty-four hours, when a severe pain in the head, accompanied with strong pulsations, and increased heat, supervened. These symptoms evinced a strong excitement upon the brain; a circumstance not to be expected, after profuse evacuations. In this case there seemed to be a translation of the exciting cause of the disease by a metastasis of action; for the head is now the seat of disease. This last complaint is mitigated by the employment of a cathartic. An attempt is made to introduce tonics, but without success. The last symptoms, however, gradually yielded, during the employment of vinum tartritis antimonii, and ipecacuanha in small doses; after which, a preparation of myrrh, and sulphas ferri, known by the name of Griffith's mixture, was administered with good effect.

Other cases might here be added, in proof of the superior efficacy of acetite of lead, with and without calomel, in cases of menorrhagia and leucorrhœa. That these two diseases have the same causes for their continuance, if not their origin, is highly probable. This opinion is adopted from the circumstance, that both diseases are generally removed by the same remedies.

The failure of tonics to cure menorrhagia, and leucorrhœa may be sometimes the consequence of administering this class of medicine, while an unequal excitability exists within the system. No one medicine so admirably removes morbid action from a part, and equalizes the excitability throughout the body like calomel. Its mode of operation remains to be explained. A deficient or excessive excitability within the vessels of the uterus may either of them be the proximate cause of menorrhagia. The one may produce, or be the cause of passive, the other of active hæmorrhagia; perhaps in leucorrhœa the excitability is deficient in these organs, when compared with the general state of the system; in either case, stimulants capable of inducing a stronger action upon a different organ, or permanent excitement in a remote part of the system, are well suited to remove local diseased action, by equalizing the general excitability. Does calomel produce its salutary effect by exciting a new morbid action? If so, it is one more instance in confirmation of Mr. Hunter's opinion, that two diseased actions are incompatible

with each other, at the same time, in the body. Is it not upon this principle that diseases are frequently removed by active medicines? In order to interrupt that habitual catenation of action which subserves a continuance of disease, it is often necessary to employ stimulants which induce in the system a diseased action, higher in degree than that which had previously existed. Upon this principle a dose of tartrite of antimony, imprudently taken by a person with dyspeptic symptoms, which had for a great length of time resisted common remedies and which emetic, after operating with so much severity, as life was despaired of, cured the disease. It is upon this principle an injudicious exhibition of digitalis to a man labouring under a dropsy, and which operated five days incessantly, removed every symptom of complaint. It is upon this principle that a person just beginning to recover from the lowest state of typhus fever, and who had wholly lost the power of articulation, immediately recovered his speech in consequence of severe pains induced in his stomach and bowels, by eating a cucumber which was inconsiderately given him by his nurse; and who did not relapse again into his speechless state upon the removal of pain.

ARTICLE XV.

ON THE EFFECTS OF

THE APPLICATION OF A HOT IRON

IN

CASES OF LOCK-JAW.

BY THOMAS BABBITT, M. D.

Some time since, I met with one of the numbers of the Philadelphia Medical Museum, in which I noticed some observations and cases on the effect of hot iron applied near the spine, in cases of lock jaw, by a medical gentleman in one of the West India Islands. Soon after I had seen those observations, a case occurred.

Case 1. A young man of slender habit and delicate constitution, was wounded in the ball of his thumb, with the end of a broken file; his spsams were becoming very violent. When I first saw him, his head was strongly drawn back, and his arms were much affected. The hot iron immediately occured to my mind. As I never had tried it, I thought this a good opportunity. I immediately had heated a piece of a bar of iron, as the first thing of the kind at hand. We laid him on his side, and applied the iron

from the occiput to the extremity of the sacrum; the application was continued for about twenty minutes. He observed that he felt more easy; we covered him warm and let him rest nearly an hour; he then began to complain again of spasms. We repeated the application, which produced the like effect. It being late at night, I left him, with direction to repeat the application in the course of the night, if he should complain; which was twice done with the same success. The next morning I saw him again; found him perfectly easy, but complained of being weak; he however soon convalesced. This was the first opportunity I had had of trying the iron.

Case 2. On the 25th of August, 1812, I was called to some distance to visit a man, about thirty years of age, who for a few weeks before, having been unwell, and considerably debilitated by evacuants and bleeding, was attacked with violent spasms. I was called in the afternoon, but did not see him until the next morning, when I found him labouring under opisthotonos, his jaws so locked that we could not open them; his eyes open and fixed; and in that situation he had lain for twenty hours. I was well aware that the application, if I made any, must be external. It was the general opinion that no remedies would be of any use in this late stage of the case. I proposed the use of the hot iron, which was immediately complied with, as a thing that could do no hurt, and very probably no good. The iron being heated, two or three strong men secured the patient on his side, and I applied the heat, for about ten minutes. As it was

an inconvenient thing, I could not support it any longer; and no one present was willing to use it. Having found, however, in the course of the first application, that there seemed to be a slight remission of the symptoms, I soon repeated it; and this application had a very visible effect. I repeated it about four times in the course of the hour; he then lay perfectly calm, seemed to doze a little, roused up, and we got some warm wine and water into his mouth, but this he could not swallow. We continued to wet his mouth, till at length he swallowed about a tea spoon full; I then gave him an injection of two tea spoons full of strong laudanum; he still seemed to be quiet. At about 11 o'clock in the day his spasms began to return slightly; I repeated the iron, after which they subsided. At 12 o'clock in the day he was able to have his head raised up, and drink out of a tumbler. At 4 o'clock in the afternoon I left him perfectly calm and easy, and able to converse, with directions to his attendants that if his spasms should return, to use the iron, which was done twice in the course of the night.

The next morning I saw him at 9 o'clock, and he was then able to sit in his chair. I put him on a restorative diet, with bark and wine. He is now in the enjoyment of good health, excepting his strength is not fully restored.

ARTICLE XVI.

A DISSERTATION READ BEFORE THE

MASSACHUSETTS MEDICAL SOCIETY,

ON

HEAT AND COLD.

BY THOMAS WELSH, M. D.

PROVISIONALLY appointed by the council to prepare a dissertation, it was my hope, and till lately, my expectation, that the gentleman, previously elected, would either have attended on this occasion, or have transmitted to the Society his Dissertation, and have rendered unnecessary the regret we now experience by this disappointment.

I AM therefore constrained to entreat your candour while I make a few observations, on *Cold* and *Heat.*

I WOULD premise, that it is not my intention, were it within the compass of the present time, or of my abilities, to enter into a minute chemical inquiry into their nature and properties; I mean only to mention a few of each as they appear in inanimate matter, and some of those which are observed in animals; having for an object principally the design of turning your attention to the important and extensive subject of *animal heat.*

COLD, in a relative sense, signifies the sensation which accompanies a transition of the fine vessels of the human body from an expanded to a more contracted state; in an absolute sense, it signifies the cause of this transition, or, in general, the cause of the contraction of every substance, whether solid or fluid, in nature.

COLD is a quality, whose nature, like that of *fire*, is best known by its effects. Whatever are the properties of *fire*, those of *cold* seem to be directly opposite; *fire* increases the bulk of bodies, *cold* contracts them; *fire* tends to dissipate their substances, *cold* condenses them, and strengthens their mutual cohesion. But though cold thus seems, by some of its effects, to be nothing more than the privation of heat, as darkness is only the privation of light, yet *cold* is seemingly possessed of another property, which has induced some to think it is a distinct substance from heat, and of a peculiar nature. It is universally known, that when cold, by being continued to substances, contracts and condenses them, to a certain degree, if *then* its power be increased, instead of continuing to contract and lessen their bulk, it expands and enlarges them; so that extreme cold, like heat, swells the substance into which it enters. Thus in fluids, they contract sensibly with cold, till the moment they begin to freeze; from thence forward they dilate, and take up more space than they possessed when in a state of fluidity. When liquor turns to ice in a close cask, it is often known to burst the vessel; when ice is broken upon a pond, it swims on the surface;

a certain proof that it is of a larger bulk than so much water.

Whatever definition philosophers may give of the word *heat*, it is quite sufficient for our purpose to say, that as *cold* contracts, so heat expands bodies, in all directions, from a centre to the circumference; but when the expansive action of heat is confined within the surface of any body, it is called its latent heat, a certain degree of which exists in all bodies whatever, when at the common temperature of the atmosphere; and this is called the specific heat of the body.

Heat is, in the material world, the chief principle of activity; hence plants and animals derive their growth and vigour; and nature, perfect in every energy, has endowed the animal body with the power of generating its own heat. Without this, the temperature of the air in various climates would have been destructive of life, and man could only have been the inhabitant of the temperate zones.

If a thousand different inanimate bodies, heated to various degrees, be brought together in a place where there is no positive cause of heat, the heat will immediately begin to flow from the hotter to the colder bodies, till all become of one temperature; but this is by no means the case with animated matter, for whatever may be the particular degree of heat of individual animals, they preserve the same degree, stable and unchanged, in every temperature to which they can be exposed; provided it be not altogether incompatible with life and health. Thus we find that

the body is not only capable in certain circumstances of supporting, without any material change, a degree of heat, in which the thermometer rises considerably above the heat of boiling water, but likewise that it maintains its usual temperature, whilst the surrounding medium is below the point of congelation. It is therefore evident that animals neither receive their heat from the bodies around them, nor suffer from the influence of external circumstances, any material alterations in that heat which is peculiar to their nature. Late accurate observations show, that the degree of heat in the more perfect animals of the same genus and species, continues very uniformly the same, whether they be invironed by mountains of snow, near the pole, or exposed to a vertical sun, in the sultry regions of the torrid zone.

The stability and uniformity of animal heat, under such a disparity of external circumstances, and so vast a latitude in the temperature of the ambient air, leaves no room to doubt that the living body is furnished with a peculiar mechanism, or power of generating, supporting, and regulating its own temperature; and that this is so adapted to the circumstances of the economy, or, to speak more accurately, so immediately dependant upon them, that whatever be the heat of the atmosphere, it shall have very little influence either in diminishing or increasing that of the animal. It is observed that all animals are, one degree at least, warmer than the ordinary temperature of the element they inhabit.

All physiologists agree in allowing a necessary connection betwixt the *degree of heat generated*, and the *state of circulation;* and every one must have observed that whilst the motion of the circulating mass continues vigorous and unimpaired, the temperature of the body suffers no change from the influence of external circumstances; but no sooner has the heart ceased to play, and the blood began to stagnate in its canals, than the absence of the generating cause of heat becomes manifest: for the lifeless mass sinks to the temperature of the bodies around it.

The phenomenon of animal heat hath, from the earliest ages, been the subject of philosophical discussion; and like most other subjects of this nature, the cause is not yet ascertained. The best treatises which have appeared upon the subject, are those of Dr. Dugud Leslie, and Mr. Adair Crawford; from the first of these performances, the following account of the different opinions on this subject is extracted.

"The ancients possessed not the requisites for minutely investigating the science of nature; and, prone to superstition, attributed every phenomenon which eluded their investigation, to the influence of a supernatural power. Hippocrates, the father and founder of medicine, accounted animal heat a mystery, and bestowed on it many attributes of the Deity. In treating of that subject, he says, in express terms, 'What we call *heat*, appears to me, to be something immortal, which understands, sees, hears, and knows every thing present and to come.' Aristotle seems to have considered the subject particularly; but noth-

ing is to be met with in his works, that can be used to throw light upon it. Galen tells us that the dispute between philosophers and physicians of his time, was "whether animal heat depended on the motion of the heart and arteries; or whether, as the motion of the heart and arteries was innate, the heat was not also innate. Both of these opinions, however, he rejects; and attempts a solution of the question on his favourite system, namely, the peripatetic philosophy."

To enter minutely, and in detail, into all the opinions offered by the moderns on the cause of animal heat would far exceed our limits. Dr. Leslie's theory depends on the following principles.

1st. That the blood does contain phlogiston.

2d. That this phlogiston is evolved, extracted, or brought into a state of activity and motion by the action of the blood vessels, to which it is subjected in the course of circulation.

3d. That the evolution of phlogiston is a cause which throughout nature produces heat, whether that heat be apparently excited by mixture, fermentation, ignition, percussion, friction, inflammation, or any similar cause.

4th. That this heat, which must be produced in consequence of the evolution of phlogiston, from the blood of different animals, is in all probability equal to the highest degree of heat, which these animals in any case possess.

This theory is founded upon the principle, that the venous is warmer than the arterial blood; which

is denied by Dr. Crawford, and the contrary affirmed, whose theory is contained in the following propositions, and the experiments made pursuant thereto. He begins with an explanation of his terms. The words *heat* and *fire*, he tells us, are ambiguous. *Heat*, in common language, has a double signification. It is used indiscriminately to express a sensation of the mind, and an unknown principle, whether we call it a quality or a substance, which is the exciting cause of that sensation. The latter, he calls *absolute heat*, the former *sensible heat*, and then proceeds to say,

" 1st. HEAT is contained in great quantities, in all bodies, when at the common temperature of the atmosphere.

2d. HEAT has a constant tendency to diffuse itself over all bodies, till they are brought to the same degree of sensible heat.

3d. IF the parts of the same homogeneous body have the same degree of sensible heat, the quantities of absolute heat will be proportionate to the bulk or quantities of matter. After reciting a number of experiments, he continues, " thus it appears, that in respiration, the blood is continually discharging phlogiston, and absorbing heat; and that in the course of circulation, it is continually imbibing phlogiston and emitting heat."

WE know that sensible heat is produced by the circulation of the blood; and we have proved by experiments, that a quantity of absolute heat is communicated to that fluid in the lungs, and is again disengaged from it in its progress through the system;

if therefore, the whole of the absolute heat which is separated from the blood, were absorbed by those parts of the system, from whence it receives the phlogiston, it would be necessary to have recourse to some other cause to account for the sensible heat which is produced in the circulation; but by the rules of philosophizing, we are to admit no more causes for natural things than such as are both true and sufficient to explain the appearances; for nature delights in simplicity, and affects not the pomp of superfluous causes. We may therefore, conclude safely, that the absolute heat which is separated from the air in respiration, and absorbed by the blood, is the true cause of *animal heat.* It appears therefore, that the blood, in its progress through the system, gives out the heat which it had received from the air in the lungs; a small portion of this heat is absorbed by those particles which impart the phlogiston to the blood; the rest becomes redundant, or is converted into moving or sensible heat."

Differing from both of these authors, Dr. John Bell, in his anatomy of the human body, treating of the heat of the blood, says, that " to suppose but for a moment that all the heat which warms the whole body emanates from the lungs, were a gross error in philosophy; it were to suppose an accumulation of heat in the lungs equal to the vast effect of heating the whole body. But were it so, we should feel a burning heat in the centre, a mortal coldness at the extremities, and marked differences, in the heat of each part, in proportion to its distance from the lungs. In fevers, we should

feel only the intense heat of the centre; we should be distressed, not with the heat in the soles of the feet or palms of the hands, or in the mouth and tongue; we should feel only the heat of the lungs. When the limbs alone were cold, would the lungs warm them? How could it warm them up to the right temperature without over-heating the whole body? When a part were inflamed, how could the heat go from the lungs, particularly to that point, and rest there? From the lungs the heat could not be regularly diffused. While the vapour which issues from the lungs keeps to the temperature of 96°, and while the lungs and heart do not exceed in heat the rest of the body, there can be little chance of any heat being generated in the lungs, except what is balanced and carried off by the halitus from the natural secretions of the lungs."

That the animal heat is produced by the action of the vessels; that heat does not proceed from the lungs, but is produced in each part of the body; is beautifully proved by what happens in *aneurism*, where the artery is tied up (in the thigh, for example); and where we make, as it were, a great experiment upon animal heat, not upon any animal, but upon the human body.

1st. Immediately after the operation, the pulse is stopped, the limb is benumbed, it grows cold, and sinks one or two degrees below the standard of its natural heat. This is the moment of total interruption in the great trunk, and of particular danger. 2dly. In a little while the limb begins to grow warm;

it swells, and gradually the limb, which at first was warm only, becomes hot, and the heat rises many degrees above the standard heat of the limb, and above the general heat of the rest of that system to which it belongs. In this second stage there is still no pulse; which proves that the circulation in the great artery is not restored; the heat, swelling, and slight inflammation which passes the whole limb, plainly proceed from the universal action of all the smaller arteries; for the blood has not yet found out any one artery fit to dilate so far, as to carry on the circulation easily, and restore the pulse. 3d. But in the next period the blood begins to creep; at last it is plainly felt; then it waxes stronger from day to day, till in process of time it beats as vigorously as in the sound limb. Now the blood has forced and dilated some great artery, the blood flows through the limb, as formerly, in one main channel. The smaller arteries are freed from their load, and cease from their excessive action; and, in exact proportion as the pulse returns, the unnatural heat subsides gradually, till at last it is reduced to the common heat of the body. Thus we may perceive, very clearly, that it is while the communication with the system (and lungs of course) by the blood vessels is most difficult, that the heat rises; that when the free communication is restored, it falls; that the intermediate period, in which there is plainly, from the redness and swelling of the limb, an excess of action in all its smaller arteries, is the period of excessive heat; and we may observe, though in a less striking

way, the same phenomenon in every inflammation, or in other words in every local disease, viz. the temperature changed, without any apparent dependence on that of the system at large. We perceive in the clearest manner that heat is continually formed in all the extremities of the system; and when we think of the processes which are going on continually in the various parts, we cannot but believe that the oxygen is completely assimilated, and gives out its heat, not when it is received into the blood, with which it seems so slightly emitted, but when it is distributed through the body, and assimilated with its parts, of which it forms so important a principle. In the human body, various acids are produced; the phosphoric acid; the lithic acid, or that which is excreted by the urine; the acidum pingue, or the acid of fat; these certainly are proofs that the oxygen is deposited in the blood.

But in reflecting upon this most difficult of all subjects, the generation of heat in the human body, many things are to be taken into the calculation, which seem, on the first glance, to be far more important than this deposition of oxygen from the blood. It is a law of nature, to which, as far as we know, no exception is found, that a body, while it passes from an aerial to a fluid, or from a fluid to a solid form, gives out heat. Now, what is the whole business of the living system but a continual assimilation of new parts, making them pass from a solid into a fluid form? The whole nourishment of the body goes on in the extreme vessels, and is a conti-

nual assumption of new parts. The extreme vessels are continually employed in forming some acids, which appear naked in the secretions; in forming oxides, as the fat and the jellies of the membranes, and white parts, in the various depositions of muscle, bone, tendon, &c. for these are all continually absorbed, thrown off by the urine, and incessantly renewed. They are constantly employed in filling all the interstices of the body with a bland fluid or halitus; they are employed in forming secretions of various kinds. In performing all *this*, the power of the vessels may do much; but the ultimate *effect* in each process must be a *chemical change;* and *perpetual changes* will produce a *constant heat.* Place the organ and focus of this animal heat in the centre of the body, and you are embarrassed with a thousand difficulties; allow this *heat* to arise in each part, according to its degree of action, and each part provides for itself.

But how then, some will say, shall this heat be regulated? I say, plainly, by the heart and lungs. The lungs regulate the stimulant power of the blood; the heart regulates the action of the arteries, in so far as regards the stimulus of fulness and distention; and with these to regulate the centre, nothing can alter the heat of the extremities except partial action, that is, disease.

I will conclude, then, that oxygen, if it does communicate heat, does so, "not to the lungs, nor to the blood, but to the whole body through the medium of the blood."

THERE are various degrees of *animal heat*, some animals preserving a heat of 100° or more in all the different temperatures of the atmosphere; others keep only a few degrees warmer than the medium which surrounds them; and in some of the more imperfect animals, the heat is scarcely one degree above the air or water in which they live.

THE common heat of the human body is about 96° or 98°. It has been affirmed by some, that in its healthy state, there is a considerable difference in the heat of the internal parts, and the surface of the human body; that the degree of heat of the heart, or lungs, or any other viscus, does in fact exceed that of the external parts; but no experiment has proved this assertion. On the other hand, it is found by experiments, that in a state of health, there is no difference in the degree of heat of either the venous or arterial blood; that the heat in the cavity of the thorax or abdomen internally varies not materially from that of the external integuments of those parts; and it is admitted, that in the state of health, the velocity of the blood through the different parts of the system, is so adjusted, that the heat is equally diffused through the whole. But, if through any irregularity the balance be destroyed; if, by the increased action of the vessels, the blood be urged with greater violence than usual, through any particular part, greater heat will be excited in a given time; this heat will stimulate the vessels into more frequent and forcible contractions, by which the velocity of the blood, and the heat, will be still further increased.

On this principle we may account for the partial heats produced by topical inflammation, and for those which arise in hectic fever.

But in a diseased state, there may be great accessions of heat, and in fact there is, particularly in phlegmon, where the parts inflamed exhibit great excess of heat above that which is found in other parts. Whenever therefore any part is greatly surcharged with heat, it becomes diseased, and so far as it becomes diseased, it loses the self preserving principle of regulating its own heat; hence accumulation of heat must ensue, and in proportion to this accumulation must be the loss of the vital principle of the part, and consequently its approximation to the state of inanimate matter. Now it has been shewn above, that when inanimate bodies heated to various degrees are brought together, the heat will immediately begin to flow from the hotter to the colder bodies, till all become of one temperature. If we consider the human body, when generally or partially inflamed, partaking in a certain degree of the nature of inanimate bodies, is not the same process of cooling pointed out, which is employed in cooling other bodies?

It is a well known fact, that fluids standing in a current of air, grow by this means much cooler than before; and it is also known, that all substances grow colder, by the fluids they contain or are mixed with being evaporated; and that the quantities of heat lost in a given time, by a body, are in proportion to the excess of its heat over or above that of the sur-

rounding medium. If therefore the sensible heat of the body increase, while the temperature of the air continues the same, the quantities of heat carried off by the latter in a given time will be proportionably increased. From whatever cause it may arise, at the termination of the hot stage of fevers, evaporation succeeds from the surface of the body; we may therefore conclude, that this is one of the means employed by nature for moderating the heat, and restraining the violence of disease.

Are we not then to conclude that we are justified in the practice of applying cold substances to the surface of the human body, and such as have a tendency to produce evaporation, when a high degree of fever exists? and such an exposure of the body to the air as may be deemed sufficient to produce evaporation in other bodies?

ARTICLE XVII.

DISSERTATION ON THE USE OF BLISTERS IN DISEASES OF THE ARTICULATIONS.

BY AARON DEXTER, M. D.

HAVING been requested by the Counsellors of the Massachusetts Medical Society, to prepare a discourse, to be read at this meeting, on any subject connected with the views of its Institution, I have selected a few cases, which I have considered of importance to the younger part of the profession, to offer you.

THESE cases are of diseased joints, of the lower limbs, particularly of the knee, ankle, and hip, sometimes denominated white swelling, &c. which have been immediately under my care. This disease in former times, usually proved fatal to the life or limb of the patient, and even at the present day, no doubt, is often so, under the common treatment. To these cases I have subjoined some observations of two English surgeons of high estimation on the same subject.

THE first case that occurred to me was in the year 1779. Being young in the profession, and the subject

a particular friend, I paid him all possible attention. I consulted the most skilful elder physicians of the town, and followed implicitly their advice, with little hopes of saving the limb. I received from those gentlemen no encouragement. The knee was the joint affected.

The first complaint was a colourless swelling without any previous injury or pain. It continued for several months. The applications were cold water affusions, and saturnine preparations, which produced no permanent effects. A weakness of the joint ensued, attended with pain when moved. Every application was made, as the different symptoms occurred, that were suggested from any respectable source, without the least success. The heads of the bones, according to the opinion of that day, were denuded, and it was considered a white swelling which was incurable.

In consequence of relief, by the application of a blister as near the part affected as possible, to another patient with a violent pleuritic inflammation, I proposed the remedy to my patient, who was prepared for any thing but the loss of his limb. This being then *to me* a new mode of treating such a disease, I again consulted my medical friends, who advised me to lose no time, as no evil could result from the trial.

Having determined on this application, I covered the joint with a vesicating plaster of cantharides, except the ham, and for several days dressed it with cerate filled with powdered cantharides. The scarf

skin was perfectly denuded. The pain in the course of ten days abated very considerably, which to the patient's feelings had principally been in the centre of the joint. He was able within a month from the first application of the blister, to bear his weight without uneasiness. I suffered the blister to heal in part, after the pain had subsided, keeping the vesications open, only round the inferior and lateral parts of the patella, which were continued several weeks. An issue was placed on the inside of the leg, about four inches below the joint, and another on the inside the thigh, at the same distance. These were kept open several months, till the irritation of the issue on the thigh became troublesome; it was then discontinued with the vesications round the patella. The issue on the leg was continued for more than a year.

When the joint had recovered its usual strength, the swelling had principally subsided, except the condyles of the femur, which gave a fulness to the joint, by a prominent enlargement which still continues. The knee I have compared with the other within a few days, and find it measures between one and two inches more round it; no part of the joint appears to be enlarged, except the condyles of the femur. A slight lameness continued for several years, which was from habit, rather than any defect in the joint. After the expiration of the first year, he experienced no inconvenience from the former disease.

The next case that came under my care was in 1787. A young lady from the country had sprained

her knee by a fall on the ice; she concealed it a long time through delicacy, but finally had it examined. The result gave her little hopes. She next applied to several empirics successively, each of whom promised what he could not perform. When I first saw her she was emaciated, in extreme pain, and could obtain no rest but by opium. Her leg was fixed, making an obtuse angle with the thigh, the patella immoveable, the condyles of the femur were much enlarged, but no appearance that threatened ulceration.

Her friends delivered her into my care, with a request to consult with several of the most experienced physicians of the town, whom they named. These gentlemen visited her separately, and concurred in the same opinion, that the heads of the bones were denuded and much enlarged, that nothing could save her life but amputation, to which she pledged herself particularly to one of them, she never would submit. This gentleman asked his medical friend's opinion, who visited her with him, and who had returned but a few weeks before from the hospitals in London, what course would be pursued in England with such a patient. He replied that he had seen several such cases in the different hospitals, that they were always considered desperate, and that no method was thought of but amputation to save life. I proposed the plan of severe external vesication, but it was considered of no use by every gentleman, except the president of this society, and my friend Dr. Wier, who assured me he had cured one patient in Halifax by a similar

practice. Electricity was recommended, and a fair trial was given; but the motion it excited gave exquisite pain without any relief.

After these consultations, and trying electricity, I immediately proceeded with the vesications, much in the same way as in the first case. The vesications were continued completely round the diseased part of the joint, by dressings covered with powdered cantharides, for several days, before she complained of the pain, or before the internal pain of the joint subsided, so far as to make her susceptible of the external irritation, which after ten days became so severe that I was obliged to reduce the vesications, and finally to confine them to the sides of the patella. At this period, that is in ten days, she could bear her leg to be moved, and in a few days she was able to draw it up, and stretch it out without assistance, to the bent state in which it had been fixed, to bear some weight without pain, and sleep without opiates. I attempted caustics in the leg and thigh, but she was so much debilitated, that an appearance of sphacolus immediately took place, which caused me to desist, and to prescribe bark and wine, as all symptoms of fever, which for a long time attended her, had vanished. Within thirty days she was perfectly at ease, as she considered the small vesications of no consequence, and returned to her friends, where she strictly pursued the advice I had given her in writing. In eight months she found herself perfectly well; that is, as she informed me many years after, from that period, she had not been obliged to pay

any attention to the limb, but continued with it bent, which could be no more straightened than when I first saw her. The patella remained immoveable, and the condyles of the femur considerably enlarged. She walked with the aid of a cane with perfect ease to herself, and enjoyed good health.

The next case that occurred in my practice, of any importance, or that I had in my power to control, was my son, in 1802, and was a case of the ankle.

A few weeks after recovery from a severe sickness, he took the measles, which very much reduced his strength. A swelling of the right ankle was perceived by his mother without any known cause. I considered it as only an effect of general debility, and directed friction and cold salt water bathing, with saturnine applications for several weeks; no change appeared, and he attended his schools without uneasiness. About three months after the swelling was discovered, he complained of pain in the joint after walking. I immediately consulted with the president of this society, who considered it still a case of debility, which might be removed by attention to his motions, and astringent applications, which I used; such as affusions of cold water, and poultices of oak bark, &c. This practice was invariably pursued for six months; during this time he was confined to the house, and principally to his bed-chamber. The applications appeared to be useful. The tenderness of the joint, and pain on bearing his weight seemed for a time to have subsided, but the enlargement con-

tinued: the thigh and leg were much diminished in size. After this period, with the same applications and precaution, he began to complain of pain and great tenderness in the joint when moved. I became alarmed more seriously than before, as he had recovered in other respects his strength. I consulted with the President on the severe vesicating application. We concluded to defer it a few weeks longer, but without any effect for the better; and having satisfied his mind, that nothing else would save his leg, and perhaps his life, than to pass one year in pain by a continued blister, I covered the ankle round with a vesicating plaster, and dressed it every day with powdered cantharides for the first ten days. Afterward I reduced the vesications to the four cavities, formed by the Tendo Achilles and the heads of the bones, on the back, and by the same heads, and the tendons of the instep, before. Within thirty days the pain and tenderness of the joint completely subsided, and he was able to bear his weight without uneasiness; but the enlargement continued for nearly twelve months, and then partly subsided, leaving the heads of the bones, that is, the inner and outer ankle, apparently in a healthy state, though considerably enlarged, which continues to this day. He was able to move the joint and take his accustomed exercise as firmly as with the other leg, but from his sufferings had become very cautious in the use of that leg. I continued two of the ulcerations fourteen months from the first application.

After a few months Dr. Warren informed me of a recipe for making an ointment to continue ulcerations, when desired, without the offensive discharge produced by cantharides, or strangury, and equally efficacious, which was the leaves of the Sabina made into an ointment, with hog's fat and bee's wax. Knowing the shrub called by that name in the country, I procured it and made the experiment without being satisfied with its effects. I then tried the leaves of the red cedar, commonly called savin, with a braided leaf. The leaf of the other is flat. I found the cedar ointment answered every description given by the English writer. It evidently caused more pain than the cantharides, and continued to act longer. It produced less discharge, but kept up a continued white slough, without any offensive smell or strangury. My son's leg, after remaining well five years, has not yet recovered its size, and the ankle continues much larger than the other. The past winter he has attended a dancing school, and worn boots, without perceiving any difference in his ankles with respect to strength.

In August 1805, D. B. a boy of about twelve years old, complained of pain in his knee, thigh, and hip, without any known cause; a slight lameness ensued, and was supposed by his mother to be rheumatic. She covered the limb with flannel, and gave him in small quantities Tinct. Gum Guiac. The pain increased principally in his hip, which became so extremely sensible, that he could bear no motion of the thigh, and soon began to walk on his toes to

favour the limb. I was called to visit him when his mother gave this account, which was nearly four months from his first complaint. I found the limb shortened from four to five inches, the pelvis distorted, the parts surrounding the joint tense and painful when touched. The joint had the appearance of dislocation, without any formation of matter. From the deep situation of the hip joint, and its appearance in this case, I considered it the most desperate that had fallen under my care, and communicated my opinion to his parents. They were unexpectedly alarmed, and agreed strictly to follow any directions that should be given. My first prescription was a stream of water as warm as was pleasant to the patient, poured on the joint, with a view of relaxing the tense integuments. This was pursued for several days, without any other effect than ease during the application. I next advised a vesication over the joint, with a caustic below it, without any sanguine expectation from the nature of the joint and its deep seated affection. I explained to the friends that my opinion was in favour of passing a seton into the thigh, as near the joint as could be done with safety, as the only means to save his life. Amputation, or any other operation into the joint, was out of the question. The blister and caustic were continued for some time with little effect; he could not move his limb without excruciating pain, and his leg became much swollen and œdematous; he obtained no rest without the aid of opium. I desired some other gentleman of the faculty might be called in for con-

sultation, and recommended Dr. Warren; and prepared for a seton, if he approved of it. I explained all I knew of the case, and of my treatment. He agreed that it was expedient to pass the seton, which was immediately done, as deep as possible, and as near the great trocanter as was considered safe, on account of the joint. Our expectations of a cure were very inconsiderable. The first day of February the seton was introduced, and as soon as the inflammation from its introduction had subsided, it was moved every day; and the silk, before it was moved, was charged with powdered cantharides, after being cleansed with warm water. It remained in the thigh before it was wholly consumed five months. He was constantly kept in that posture which was the easiest. The pain in the joint and the tenderness began to abate at the end of the first month; and in July he was able to bear his weight without pain; but could bear no lateral motion for several months. With the aid of a crutch and an high heeled shoe, in autumn, he could walk the streets perfectly free from any uneasiness; and at this time has recovered his usual strength in that limb, though shortened and distorted about the pelvis, which will probably always remain. After the seton was worn out, I caused two ulcerations to be formed and kept open with the savin cerate, for about three months, on the sides of the enlarged joint. The restoration was slow, but appears to be perfect. He is in a store, in this town, and as able to do the business of it as any young man of his age.

In every case of diseased joints, that have fallen under my care, from experience in the first case, I have considered twelve months strict attention requisite to complete the cure, which I have explained to the patient, or if a child, to his parents; and that without a cure the loss of limb or life must ensue. This I would recommend to every medical man. Without this full explanation, and an agreement on the part of the patient, I would never advise the severe external stimulating process; but where the parties will pursue the directions with resolution, and no appearance of matter having been formed, I have the highest confidence in the practice. During the stages of inflammation, which sometimes occur, an application of leeches and saturnine preparations is certainly adviseable; after which, if the joint continues swollen, with pain and debility, I think no time ought to be lost in pursuing the stimulating process.

Mr. James Russell, of Edinburgh, surgeon to the infirmary of that place, wrote a treatise on the principal diseases of the knee joint, and published it in 1802, in which he relates successful experiments of his own, of external irritations, particularly with cantharides, which gave Mr. Cooper, according to his own acknowledgment, the first hint to pursue this practice. Mr. Russell observes, that patients under an incipient attack of white swelling, first experience inconvenience in walking, from the weakness of the joint, which is particularly felt after exercise. As soon as the pain becomes constant, to save the limb

from uneasiness, the patient begins to touch the ground with his toes, which causes the knee to become bent; afterwards this posture is frequently permanent from other causes. The distention which the skin suffers from the increase of the swelling, gives to the whole surface of the joint a smooth and shining appearance, and often seems to consist of a fluid collection, which, however, arises from an accumulation of soft matter. After the knee has continued for some time in a diseased state, the diseased action gradually extends its influence over the neighbouring parts. The leg and thigh waste and are emaciated to a great degree, and the whole system becomes affected, so that the health and strength are gradually undermined, till the patient dies, exhausted from the continuance and violence of his sufferings.

The predictions that we are able to make in cases of morbid affections of the knee joint, must depend partly on the nature of the complaint, and partly on the severity of the attack. In rheumatic cases, the most severe attacks are attended with little danger. But cases of white swelling are always formidable, and portend danger in the slightest form. Therefore, the species of complaint, as well as the violence of symptoms, must be considered, before we ought to give an opinion on the subject.

In a decided attack of white swelling, Mr. Russell advises to small bleedings from the joint, particularly with leeches; where there are symptoms of inflamtion, cold saturnine solutions, and solutions of the muriate of ammonia; but if the cold astringent

applications fail in giving relief, he advises hot stupes, as recommended by the French surgeons, but doubts of their general efficacy. He reprobates, from experience, the use of mercury in any form. This medicine I tried in the first case stated, without any good effects. Of all the medicines in common use for this disorder, he considers a powder of gum ammoniac, moistened with vinegar of squills to form a paste, spread on soft leather of sufficient size to cover the affected part, as best. He recommends a number of other applications which are in general use; but the most important class of medicines, to produce permanent relief to this very formidable complaint, are those which will cause a purulent discharge of matter from or near the part affected. They all operate on the same principles, but differ materially in their effects, according to the mode of using them. The insertion of issues in the vicinity of the joint, appears to have been the most ancient practice of treating white swellings.

Mr. Panteau, of Lyons, recommends forming an issue on the knee joint, an inch in diameter, by an actual cautery, and preserving a discharge for a considerable time: but the surface is too inconsiderable to produce the effects most desirable. Mr. Russell observes, being convinced by experience, that of all the substances used, or that in our present state of knowledge can be used, to stimulate the skin and produce a discharge of matter, blisters of cantharides are the most powerful, the most certain, and the most completely under management.

Mr. Samuel Cooper, member of the Royal College of Surgeons in London, wrote a treatise on the diseases of the large joints, in 1806. In consequence of the importance of this work, the college adjudged to him the prize for that year.

Mr. Cooper observes, that the structure of the knee joint is the most complicated of any articulation in the body. Besides the capsular and lateral ligaments, which it has in common with a majority of other joints, it is also furnished with particular ligaments. The complication of its structure seems to be the reason why its diseases should not only be more frequent, but more obstinate and difficult of cure than most other joints. The articular surfaces of the knee, and the cavity of its capsular ligaments, are much larger than those of any other articulation. No large joint in the human body is so little strengthened and supported by the conformation of the bones as the knee; and no other important joint derives its strength so entirely from ligaments. Of course, no joint is so much exposed to accidents. In all inflammatory affections of the joints, he recommends the same treatment as is commonly used in all other local inflammations; and as soon as the first stage of inflammation has subsided, to apply a blister as the most efficacious remedy, and to keep up a discharge from the blistered surface with savin ointment.

The only distinctions which systematic writers have made with respect to the white swelling, are rheumatic and scrofulous. The latter kind of disease is a rare occurrence in this country, under the name of

white swelling. It appears to me, as far as my experience goes, to be generally a local affection, and the constitution becomes affected only by the progress of the disease. Both Russel and Cooper give their decided opinion, that almost all cases of white swelling arise, in England, from a scrofulous habit; that the bones are never enlarged, but become diseased; and that the disease always commences in the ligaments and membranes of the articulation; and they say when the disease is cured the joint is reduced to its natural size, which has not been the case with my patients, and the enlargement in them appears permanent.

Mr. Cooper recommends, in the strongest terms, large blisters sufficient to cover the diseased part, and the surface to be kept open with the savin ointment steadily applied, till the cure is effected, without any regard to its cause; and that fomentations and poultices are totally unworthy our attention; for, if they do no harm, an insidious disease is gaining ground, which sometimes proves fatal to the life or limb of the patient, by neglecting severe measures, as soon as they are indicated. He gives Mr. Crouther full credit for the invention of the savin cerate for dressings to excoriated surfaces in the place of cantharides, which often produces a troublesome and painful strangury. This never occurs from the savin, but a white matter originates on the surface, which it is necessary to scrape off, to keep it from healing underneath. I experienced no difficulty from this white matter; nor was there any

disposition to heal. This dressing invariably gave more pain than the cerate with cantharides, but was more efficacious. I always observed that the more pain was produced by the dressing, the more the joint acquired strength. The practice may be considered cruel, but is it to be compared to the loss of the limb or life of the patient? Cooper observes, that humanity in this, or any other case in surgery, does not consist in withholding strong and vigorous measures, but in boldly deciding to employ them the first moment their use is indicated, and strictly to persevere in them till the object, if possible, be effected. And he observes further, that nothing is more serviceable in all cases of diseased joints, than to keep the morbid part perfectly motionless. Foolish attempts to walk, frequently renders the most scientific plan of treatment useless. He observes that the general state of health alone can form a solid reason for the removal of the limb. When the strength of the system seems nearly exhausted by the local malady, there is no alternative. An attempt to preserve the limb in such cases, must prove fatal to life. But while the constitution shews itself equal to the struggle, it is impossible to decide with certainty, that a white swelling, however bad it may be, will not have such a termination as to save the patient's limb.

Mr. Cooper, in treating of the hip joint, observes that the disease is very analogous to the white swelling of other articulations. One remarkable symptom in this disease is the elongation of the limb,

which has never been explained on any rational principle; but it is a well known fact, that the limb is frequently three or four inches longer than the sound one; and after the formation of matter, the limb becomes shortened, which arises from an actual dislocation of the head of the thigh bone, in consequence of the destruction of the cartilages, ligaments, and articular cavity. None of these circumstances attended the case I have related, except the shortening of the limb, which did not arise from suppuration, as it never appeared, nor was there any marks of elongation, in any stage. The shortening depended, so far as any judgment could be formed, on the gradual distortion of the pelvis; but Cooper had an opportunity of dissecting most of his patients, as appears by the history of his cases. He considers it in every stage a most formidable disease, and advises nearly the same remedies as in the white swelling of other joints, but thinks he has found more benefit from deep caustic issues in the hip disease, than in the other joints.

Dr. Falconer, of Bath, informs us, that the waters of that place are a sovereign remedy, when used warm. Cooper supposes, that most of his cases were merely rheumatic, for the cure of which a warm bath of any kind of water is the best remedy. The Bath waters contain nothing specific, and are highly improper where a real disease of the hip joint exists, except in the early stages where inflammation is suspected.

ARTICLE XVIII.

DISSERTATION ON CERTAIN EPIDEMIC DISEASES,

WHICH PREVAILED IN THE COUNTY OF WORCESTER, MASSACHUSETTS.

BY THE HON. OLIVER FISKE, M. D.

THE rapid improvements in the arts and sciences which are taking place in all parts of the civilized world, are effected by an union of emulation and effort. So short is our existence, and so limited are our powers, that detached from society, we can make but small progress in science, and at the close of life our attainments are buried with us. In society, by the interchange of knowledge, we add materials to the general stock. This treasure increases with its use; and when the contributors are no more, this accumulating fund passes as a legacy to posterity, and, like the mantle of Elijah, imparts a portion of our spirit.

EXPERIMENTS may be adduced to solve the problems in mechanic arts, and improvements in these are seen with the certainty of mathematical demonstration. Not so with those concerns which partake

more of science than of art; here the data are more obscure, and the deductions more uncertain. Under this description the knowledge of medicine is to be ranked. So intricate is this science, so various are the subjects for its application, and so short is our season for improvement, that little would be learned, and much less would be communicated to posterity, were it not for the records of a medical institution.

A Fellowship in the Massachusetts Medical Society makes us responsible for *all* the benefits which the institution is calculated to produce. As men, it is our happiness to be benevolent—as physicians, it is our duty to *do good, and to communicate.* Under these impressions, gentlemen, I beg leave to perform this anniversary duty, by communicating to you the history of a very malignant epidemic, which visited the town of Worcester, A. D. 1796; and by noticing a more recent and more generally alarming disease, which has appeared in Connecticut, and in some parts of this Commonwealth.

The spring of 1796, was as healthy as usual in Worcester and its vicinity. The scarlatina anginosa, which had been wandering about us for two years preceding, visited some parts of the town in an irregular manner, but without any uncommon malignancy. The measles also had a partial spread; but the symptoms in general were mild and favourable. The latter part of June was unusually warm and lowering. Indeed, the whole month, and some part of May was accompanied with frequent moderate rains. No unusual complaints existed. The first week

in July was warmer than usual for the season, but the air was pure and dry; the residue of the month, wet and sultry, without great rains—vegetation extremely rapid. On the fifteenth of the month, the dysentery made its appearance. The first person affected was an apprentice to a tanner, about seventeen years of age, of a slender, lax habit. The disorder terminated favourably in about ten days. The next was a labouring man, aged 24, whom the measles, a few months before, had left in a feeble, unhealthy state. In this patient, the disorder assumed its most malignant form. The symptomatic fever was of the typhus kind. On the third day, a delirium supervened, and he died on the fifth, with apparent mortification of the bowels.

About the first of August, the disorder began to rage in the centre, and most populous part of the town, where it was now wholly confined. In the course of three days nearly fifty persons were affected. The disease was ushered in, under almost every possible form. In healthy and robust habits, the symptomatic fever was of the synochus type. In those of feeble and lax constitutions, the typhus was its attendant. In most patients it was remittent. In some, particularly in infants, the vital energy seemed destroyed in the first onset, inducing that nervous debility, peculiar to the more malignant kind of the scarlatina. The disorder was generally fatal to children, particularly about the period of the first dentition, when the system is most irritable. Few aged people, unless much exposed to the conta-

gion, were affected, except by slight pains in the abdomen. Indeed, dysenteric pains of this sort were more or less felt by all the inhabitants. Many were troubled with diarrhœas, and cases of cholera were not uncommon.

Until about the fifteenth of August, the disease was principally confined to the compact part of the town. A few cases, however, appeared in other situations. But from this period, it spread in every direction. No situation was now exempt. Those who inhabited the most hilly and healthy parts of the town seemed as liable to its ravages, as those who dwelt on low ground, and in the vicinity of swamps and stagnant water. At the first attack, the symptoms in many, particularly in adults, seemed strongly to indicate bleeding; but it was seldom used, and I believe never to advantage. The evidences of debility were so early induced, that the most active stimulants became indispensably necessary, even in almost the first stages of the disorder. This state was invariably accompanied with an aversion to all kinds of food, and even drink; and the effect of taking either, whenever necessarily accompanied by persuasion, was a dysenteric discharge, or a violent tenesmus; and what was still more extraordinary, all who were sick in the same room, from the force of sympathy, partook of the same sensation, and were operated upon in the same violent manner!

The arterial system was preternaturally excited, but the pulsation was feeble and tremulous; in children, it was often too quick to be counted, and

resembled the vibration of a cord. The tongue was generally dry and dark, and often cold.

The disorder, when favourable, finished its course from within seven to fourteen days, according to its violence, and the habit of the patient. A slight remission of the symptoms was generally succeeded by a gentle moisture of the skin, which, from the beginning of the disease, was obstinately dry, and exhibited a dark, cadaverous hue. The stools became less frequent, and more copious, with a gelatinous appearance, arising probably from the abrasion of the colon, and consequent serous effusion. In severe cases, but which terminated favourably, the patient generally remained about four days apparently in a stationary state. Some more favourable symptoms begin then to appear. Something like a natural discharge from the bowels occasionally takes place. The pain and tenesmus, which have been intolerable, in some measure subside, and the appetite gradually returns. The convalescent state, however, is long and tedious. The pains so peculiar to this disorder are for a long time troublesome, and the irritable state of the alimentary canal induces obstinate diarrhœas, and sometimes lientery.

In the last stages of the disorder, in some patients, a most troublesome aphtha took place. The tongue, mouth, and throat, and even the whole alimentary canal, became incrusted. When the salivary glands were uncovered by the sloughing of the mouth and fauces, a ptyalism ensued. Anasarca was not uncommon, but disappeared as the fibres recovered their tone.

The above comprises the history of those cases which were severe, but not mortal. We shall now notice the disease under a more malignant form. The first subjects of all epidemics are those who have a particular predisposition to the disease. By this immutable law, children were the first victims of the malignant dysentery. Those who derived their chief nourishment from the breast, generally escaped the contagion; but from the time of weaning until four years old, they were the most susceptible. Searcely one within this period recovered until the first of September.

This disease appeared in children with more various symptoms than in adults. A languor of the countenance was noticed in some, previous to the formation of the disease; in others, it was ushered in by a morbid affection of the stomach and bowels. In these cases, death approached with hasty strides. No application seemed for a moment to allay the symptoms, or to avert the fatal blow. Puking and purging were almost incessant; the extremities cold; the pulse fluttering, and scarcely perceptible; fibres inelastic; a cadaverous countenance; sweat standing in drops upon the forehead, the upper lip, and around the eyes. The pupil of the eye was uncommonly dilated; and in sleep the eye was but half closed, and rolled up into the socket. When awake, the winking and motion of the eye was as deliberate as is common to persons deeply oppressed with sleep. There was an evident delirium from twelve to twenty-four hours before the fatal period.

For the cure of this inveterate disorder, perhaps the *Materia Medica* was never more ransacked on any occasion. The dysentery, diarrhœa, cholera, and other like affections of the bowels, with the generality of people, are synonymous, and so confounded, that a prescription which has been favourable to a gentle relax, has been extolled as a specific for the dysentery. In such a season of calamity, no wonder that every humane feeling was called forth, and every hand extended to administer some friendly aid. Every family had its nostrum, and every visitant something new to recommend; and this too, under the common testimony in favor of a favourite prescription, "that it can do no hurt, if it should fail to do good." The truth of this maxim was perhaps never more verified! Under these embarrassments, it sometimes required great resolution in the physician to prevent an improper administration of medicine. The plan of cure which seemed to be indicated, was, in the first instance, to clear the first passages. This was generally effected by ipecacuanha and castor oil. Opium, in some form or other, seemed indispensable. Mucilaginous drinks were freely used, together with soft anodyne injections. The soreness and swelling of the abdomen was attempted to be relieved, and sometimes with effect, by the use of volatile liniments and warm baths. The tenesmus, so peculiar to this disorder, was mitigated by enemas, but the excoriation was so great, and the prolapsus of the rectum so troublesome, that with great pain and difficulty they were administer-

ed. In some cases astringents were injected early in the disease; but generally some mitigation of the symptoms, particularly of the fever, rendered their use more advantageous.

At the time when the crisis appeared to be forming, nature indicated the most stimulating food, such as fried bacon, salt pork, salt fish, onions, and the like. On this food, too gross for a state of health, some patients fed freely, and with sensible advantage. Generous wine, brandy and water, and milk punch, were usually taken in all stages of the disorder.

About the first of September, this disease assumed a more favourable aspect. The number of patients was diminished, and their symptoms were more mild and favourable; but where the disorder had formed itself during the unfriendly season a change of the atmosphere was of little service.

Ten days elapsed after the first death, which happened on the 19th of July, without any mortality. Between the second and third, eight days intervened. In the course of one week after, the deaths averaged one per day: In the second week six died; ten in the third; fourteen in the fourth; and seven in the fifth week, which ended on the twelfth of September. There were ten other deaths between this time and the twelfth of November, when the disease disappeared. Of the above, two were between sixty and seventy years of age; two between twenty and thirty; four between twelve and seventeen; forty-two between one and five, and two of six months; making, in the whole, fifty-nine persons.

SELDOM has the record of medicine in our country given a more melancholy detail of the ravages of death! One in thirty-nine of the inhabitants of Worcester fell the victims of this devouring pestilence!

I SHALL now, as proposed, proceed to notice a disease, which has recently spread consternation among us, and which has received the appellation of *Petechial Fever.*

AFTER the ample report of your committee upon this subject, it will not be expected that I do more than offer you some gleanings from the field, and give an appendix to their labours, rather than a complete work of my own.

IN this learned investigation, great patience, industry and candor are manifest; but from the hasty, and perhaps partial manner in which information was furnished the committee, and the prejudices and prepossessions which insensibly operate upon the fairest minds, and no doubt influenced some of their correspondents, it would be unreasonable to expect that a work of this nature should be free from error. It is certainly more extraordinary that so few should be found. Two only have I seen mentioned; these I shall notice in the sequel. In such a work, many minor facts and circumstances, which give a character to a disease, and a knowledge of which may be useful to the physician, must necessarily be omitted. Some of these I shall attempt to supply.

SUBSEQUENT to the report of your committee, I had some opportunity to notice a further variety of the Petechial Fever. About the last of June, I was

requested to visit a young woman in a neighbouring town, who was in an alarming stage of this disorder. I found that in addition to the marked symptoms with which I had been acquainted, there was a leading one which I had never seen. This was an obstinate diarrhœa. Three or four persons in the same house and neighbourhood had been taken in the same way, and had died. She was under the experiment of the stimulating plan. I advised to a gentle cathartic, to keep the body and the extremities chafed and wrapped in dry and hot flannel, and to follow the cathartic with warm nutritious soup, wine whey, and other gentle cordials. The result was favourable; the diarrhœa was checked, a diaphoresis ensued, and the patient was restored. A few other cases occurred in that neighbourhood, which terminated favourably by this treatment. These cases proved that the disorder had varied with the season, and that the highly stimulating plan was not the best adapted to its cure under this change.

About the middle of July, Messrs. R. and S. two healthy and active young gentlemen in my neighbourhood, were attacked with this fever. In Mr. R. the disorder commenced with pain in the head, a quick and hard pulse, violent throbbing of the temporal arteries, rigors and pyrexia, with great distress at the stomach, attended with oppressed respiration, and at times a sense of suffocation. Learning from the family that he had complained of vertigo, and oppression at his stomach, the day preceding, I gave him an emetic, which discharged the

healthy contents of his stomach, followed with bile. This lessened the pain of the head, and favoured a general perspiration; but the distress at his stomach was not relieved, and the dyspnœa remained troublesome. The bowels were excited by powders of calomel. Anodynes, with gently stimulating cordials, were occasionally administered. The disease lasted ten days before he became convalescent, and ended in a diarrhœa. Was not this a case where *bleeding* would have been beneficial?

Mr. S. was taken with numbness in one hand, succeeded by pain and dizziness in his head, with alternate pains in his limbs and various parts of the body, with great distress at the stomach. I gave him an emetic, which operated freely; but the discharges, as in the above case, indicated no deranged state of the stomach, and gave him no relief. I repeated the emetic the next day, at his urgent request, as he was confident he had a *load* there, which ought to be discharged; but without the benefit which he expected. He found relief from the effect of sudorifics, with the occasional use of anodynes, followed with a mild cathartic. The more distressing symptoms abated in a few days, but he continued feeble for a fortnight, when an eruption took place, general and distinct, which ended in a desquamation of the cuticle. It is important to remark, that in both these cases the disorder was brought on by an exposure to cold, after fatigue from exercise. They also serve to corroborate the idea, that there was an existing predisposition to the disease, and that this exposure was the exciting cause.

As the nature and the origin of this disorder are yet the subjects of inquiry, it may facilitate a just result to add more particular remarks. During the period of my acquaintance with this malady, I noticed almost every shade, from a slight and almost imperceptible tinge, to its fixed and glaring colour. In the places where it was the most prevalent, it was not uncommon for people who did not think themselves sick to feel pain, and other sensations to which they had not been accustomed, and which were the more common attendants of the petechial fever. This I myself experienced for forty-eight hours, while most laboriously engaged in my professional duties at Rutland. Some time in the night, while enjoying a short respite from my fatigue, I awoke with a mixed sensation of pain and numbness in my right hand and arm. I was at the time reposing on my left side. After sitting up in bed for a few moments, and giving it a violent friction and exercise, it was so far recovered as to enable me to renew my rest. But, for the period mentioned, I found it troublesome whenever I was so little occupied by pressing calls, as to attend to myself. The numbness was confined to my hand and arm, but the pain was erratic. Wherever it was felt, it was pungent and distressing, but most excruciating when, like the *nail of Sisera*, it pierced my *temple*. A few days prior to this, I slightly broke the skin of a finger, upon the hand affected. The pain, in its eccentric course, made frequent and distressing attacks on this part. The vessels appeared to be excited, and an ichorous dis-

charge was produced. There was no suppuration; and when the pain subsided, the wound assumed a mild appearance, and readily healed. This affection of my hand and arm was the more noticable, as I was obliged to substitute my left hand in managing my horse. That this arose from a predisposition to the disease, I infer from my never having noticed at any other time a similar affection, and from hearing a similar complaint of a very pungent pain in a slight wound from a patient labouring under this disease, which he compared to the repeated stinging of a bee. I was also informed by some others, that they were apprehensive of an incipient gout, from experiencing severe and darting pains, to which they had not been accustomed, and which they supposed were peculiar to that complaint. I have been more minute on this head, as I have seen no communication of the fact, though doubtless it has been noticed by others.

Relapses have been more frequent in this disease than have been noticed in any other, and whenever they occur, a *succession* may be expected; and it has been observed that those patients are the most liable, whose systems have been over excited by stimulants, or exhausted by sweating. One of the former class fell under my care, who had an *habitual* attachment to the stimulating plan of cure. Her relapses had been several times repeated before I saw her. In the course of a few hours, she had taken nearly a pint of her favourite remedy, without removing the great distress of her stomach, a sense of

suffocation, which was extreme at intervals. Pursuing the same plan, I gave her large and repeated doses of laudanum, but without a durable effect. As she began to complain of nausea, I gave her a powder of ipecacuanha, which evacuated her stomach of its filthy load. I then gave her a strong decoction of snakeroot and valerian, with tinct. castor, after which a gentle perspiration was obtained. She rested quietly, and by the aid of suitable nourishment, she was restored to the same state as before her relapse. I now enjoined it upon her, to abstain at all events from her stimulating course, to drink cold water instead of brandy, and to rely upon gentle exercise and nutritious diet for her cure. She had resolution to follow the advice, with sensible and lasting advantage.

In the course of the last summer, I was frequently consulted by persons, who in the preceding winter and spring had had the petechial fever, and who in consequence had passed into a hypochondriacal state of body and mind. I found them under great dejection, and extremely apprehensive about their recovery. After the use of evacuating medicines, I recommended gentle tonics, a generous diet, and a ride to the "*salt water.*" I have known no instance, in which a compliance has not been effectual.

It has been generally remarked, that most of those who have had this disease were slow in recovering their equanimity of temper, and cheerfulness of mind. Their feelings were more irritable, and the

observation has been, that "little things affected them."

At the close of the last winter, and through the course of the spring, the petechial fever has appeared in some parts of New Hampshire, Vermont, and in the neighbouring borders of Canada. From the accounts which we have received, it spread not only dismay, but desolation in its onset, as in other places where it has visited; but that the season, or the physicians, have now stripped it of its terrors, and its power to annoy. The disease being new, the physicians, probably, relied more on newspaper directions, than their own judgment, and in many cases, no doubt, were unable so to discriminate as to adopt the best course; but such as they *did* adopt, they have strenuously defended. Unfortunately, the same diversity of sentiment respecting its nature and cure, which has appeared in some other places, has been prevalent there. Each system had the sanction of experience, and its superior efficacy was attested by a host of patients, rescued, by this mode only, from the grave! That physicians should adopt different methods of cure, for a disease which appears under different shapes, is natural; but that they should pretend to bend the discordant symptoms which appear under the various modifications of the disease, in various patients, to one rule, is extraordinary. It cannot be extensively true in fact. Physicians may theorize in support of a sentiment prematurely advanced; they may defend it pertinaciously,

but fortunately, they abandon it in practice. In speculation only they are wrong. From the publications of medical gentlemen, however discordant as to the method of cure, we learn the identity of the disease, and that it has not been formidable, under judicious management.

I HAVE mentioned that two errors have been noticed in the report of your committee. I will now state them. The first is, that "a considerable proportion of the physicians in those places where a very liberal use of cordials have been tried, are now convinced that the practice was highly injurious;" the other, that "bloodletting may sometimes be practised to advantage."

WITH respect to the first sentiment, it has been advanced upon good authority, and with the obvious qualification, is unquestionably true. It is a well known fact not only in Connecticut but in this state, when a "bold and liberal use of stimulants" was indiscriminately and perseveringly administered, that in the opinion of the most judicious physicians," the *remedy*, in many cases, proved *worse than the disease*, and in others, "was highly injurious." It would be illiberal if not unjust to ascribe the introduction of this wide spreading and in many cases pernicious remedy to the want of professional skill in those who first sanctioned it. It is to be presumed that in the first appearance of the disease, evacuating remedies were administered in cases which were fatal in their first attack. From the failure of success, and in the

consternation of the moment, it was perhaps hastily inferred that the practice in all cases would be pernicious, and that stimulants must be resorted to as the only safe course. Their application happened to be successful. The sovereign remedy was promulged, and in many cases indiscriminately followed. Brandy and opium were prescribed in many instances to almost an indefinite amount, and their repetition confided to nurses, confident in their efficacy, but incompetent to judge of their effects. Surely this practice by *all* physicians must be considered as "highly injurious." On the other hand it is equally true, that those who adopted the evacuating course, and regarded *stimulants* in all cases as inadmissible, were as erroneous as were the gentlemen whom they opposed. Some physicians of both parties were, doubtless, too tenacious of a hasty opinion, and too confident that success would be the final result. But the lessons of experience were at length heeded. Relaxing from their rigid rules they began to prescribe for a *disease* instead of a *name;* and in the spirit of the Report, they were convinced that a very liberal use of cordials, rum, brandy, and opium, "was highly injurious;" or in other words, that the physicians in Connecticut and elsewhere, from their experience and familiarity with the disease, and in the exercise of their reason and judgment, prescribed from the symptoms as they occasionally appeared.

While justifying the report of the committee, it is more pertinent to pass from *speculation* to *fact*.

In some parts of the county of Worcester, "the popular remedy," as it has been called, had a wide and destructive spread. Its fame having been known, and it having been recommended in some cases by some of our most skilful physicians, and very properly no doubt, it obtained a currency which they did not intend, and which became almost impossible to control. From being a remedy for the sick, it was very natural that it should become an antidote for the well. So great was the alarm of the inhabitants, and so strong their reliance upon this sovereign specific, that the shops were soon exhausted, and the supplies in private families consumed, and waggons were despatched to the neighbouring towns for liberal supplies. The *cure* became contagious, whatever may be said of the *disease;* and the remedy was resorted to in many places where the disorder had not appeared. Some physicians so far partook of this infatuation, as to enforce the precept by their example, and by bringing on a state of debility, favourable to the disorder, they added to the number of the sick. Some died in a state of intoxication, while their watchers sat by them in the same condition. The disorder seized the enfeebled prey—the next night they were watched with in their turn, and died! The judicious physicians of the county of Worcester who noticed these effects, were surely of opinion that "the practice was highly injurious."

The other error mentioned is, *that blood-letting may be useful as a remedy.* Upon a perusal of the Report it will be found, that this is recommended under

certain circumstances only, and with great caution. If, as it has been asserted, from the constitutional state of the air, or from other circumstances, that our diseases generally will not admit of bleeding I will not claim for this malady an exemption. This fact, if it exist, is not notorious in our vicinity; and I think that the gentlemen in Connecticut, who have noticed it, must have met with some cases of Petechial Fever, which would have been benefited by blood-letting, performed with the caution recommended by the committee. It seems evident, from the account of every dissection which we have seen, that the vessels of the head are unduly charged.

To this cause we may ascribe most of the symptoms which appear; and that this is the fact, I further infer from the almost certain relief obtained by producing that state of the vessels of the surface of the body and extremities, favourable to a diaphoresis; not that a diaphoresis, or sweating, has any agency in the cure, but only as indicative of the action and enlargement of the vessels on the surface, which admit of an equalized circulation. As conducive to this, I apprehend that emetics, in nauseating doses, are principally useful. There has been no part of the curative process so much relied on, in general practice, as sweating; but abstractedly, I conceive this to be of no value, and long continued, must be pernicious. Where this is pursued, the liberal use of cordials, I grant, is indispensable.

In fine—However discordant and various may be the reasoning of physicians, the laws of nature are

uniform. Cause and effect have a fixed relation in the animal frame, and even the Petechial Fever, this "non-descript," this "Protean disease," which has stalked before our imagination as a monster, will be found, by due attention, to be a subject of the same government as other diseases. Whatever may have been the diversity in theory, respecting the mode of treatment, the practice of most physicians has been substantially the same. This I infer generally, from the necessity of the case, but particularly from an exemplification in a joint practice with my respected friend, Dr. Haskell. From noticing each other's publications, we met in consultation, with a mutual presentiment that we should not harmonize; but we found, upon experiment, that our method of treatment, was similar; so much so, that we visited the same patients together, and alternately, as would best accommodate our business. The satisfaction at this discovery was mutually felt, and mutually expressed.

On the season of our anniversary, it may not be unprofitable to inquire how far our institution has answered the expectations of its founders, and requited the patronage of an enlightened government, which has established it. The liberality of the statute, by which we are known as a society, and our liberality in expounding it, has given this establishment so broad a range, as to include in its embrace the greater part of those who would confer or receive honour by an admission. Our laws and regulations are intended to facilitate every blessing which an institution of this character is calculated to afford. An

union of the respectable physicians of the commonwealth, has been sought and nearly effected; and the pleasures and benefits of a friendly and literary association have been felt and diffused. The general harmony which has prevailed, while honourable to the fellows, has caused a concentration of our efforts to increase the knowledge of medicine, and secured the respect and confidence of the community.

It is perhaps a just remark, that the great body of physicians of every country form a mass of less accordant materials than any other class of professional men. With great care and exertion in its transactions, it was confidently hoped, that our institution would form an exception to this truth. But our hopes have proved fallacious. The repellant particles held in contact by casual and artificial pressure, have burst from their unnatural alliance, and formed a new cohesion with more congenial elements. From this recently concreted body has emanated the Petition now pending for a College of Physicians. This has resulted, most unquestionably, from a spirit hostile to the Massachusetts Medical Society, as well as the medical institution of Harvard College; and if granted upon the conditions prayed for, must be subversive of the interests of medicine in the commonwealth. The same collisions of interest and ambition, whose baneful effects have been witnessed wherever similar innovations have succeeded, must here be felt. And the most favourable result that we can hope is, that after experiencing these evils, we may again unite to repair the injuries which our dis-

sentions have occasioned, and to regret the want of wisdom and patriotism which caused them.

With such mischiefs in prospect, our duty, gentlemen, is obvious. But it is believed, that a wise legislature, the guardians of the rights and interests of the community, will be cautious of sacrificing an institution, the child of their adoption, whose salutary influence is acknowledged through the commonwealth, and which they are virtually pledged to protect.

ARTICLE XIX.

A

VIEW OF THE MERCURIAL PRACTICE IN FEBRILE DISEASES.

BY JOHN WARREN, M. D. PRES. M. M. S.

PROSPECTIVE INTRODUCTION.

In the first part of the following treatise, it is proposed to give a short account of the introduction of mercury into use, in the treatment of fevers in New England, and other parts of the United States; and at length, in Europe and the West Indies.

The early opinions advanced with respect to its merits in general, the diseases which gave occasion to its adoption, and the analogies on which it was founded, particularly in America, and the strong prejudices entertained by many against it, will be particularly noticed.

An examination of some of the preparations of this medicine, will be necessary, for explaining their effects on the body, and the different degrees of

activity which they possess; and, consequently, the several theories founded upon them.

It may, perhaps, be made to appear, that these medicines act, in the first place, as powerful stimulants upon the body; in a manner revolutionizing the whole system, changing the existing order and modes of action in the organs; and, in the second place, that they may furnish some portion of their constituent parts to the blood in the blood-vessels, which must be highly stimulated by them, and thus be enabled to expel or correct the morbid matter, if any such exist, and bring about an entire change of action.

That therefore, in most cases, a quantity of the medicine merely sufficient to evince its action on the mouth, is competent to a cure; yet, that in some cases, this is not to be accomplished without full salivation.

This being effected, it is evident, that a more complete subversion of the present train of actions is brought about, as a new disease may be said to be induced.

Such disease, on Mr. Hunter's principle, that two general disorders cannot hold dominion in the body at the same time, may be called the artificial disease, and may be considered as substituted for the original, which is subdued or cured.

Before presuming thus to create a new disease, the nature of it should be well understood, and the method of entirely removing it should be under complete command. We should, therefore, be thoroughly acquainted with the method of managing

salivation, and the modification of the process; the means of accelerating it in certain cases, where the violence of the disease renders the system too torpid, and of moderating it when it has exceeded its due bounds, or threatens, itself, to destroy the patient.

Some of the means of assisting the operation of mercury, and of suppressing its activity, will close this part of the subject.

Sensible of the extreme difficulty of establishing any rational theory on the modus operandi of mercury, I offer these suggestions with great diffidence, far from being ambitious of originality, on the one hand, and very little studious, on the other, of conforming them to any system whatever. Such considerations as have occurred either from observation or experience, whether of others or myself, are here presented.

Indeed, the whole of the treatise was designed, not so much for the purpose of exhibiting any thing new to the observation of the physician, as to present, in one view, a summary of facts, from which he may draw his own conclusions.

This remark will more especially apply to the second part of this treatise, of which the yellow fever is the principal subject; this disease having been the occasion of bringing mercury into general use, both in the West India islands, and on the continent. The various denominations under which it is described by the different authors, who have written on its history, and the different opinions which have

been advanced respecting the question, whether it was contagious or not, as well as a considerable disagreement respecting some of its symptoms, have rendered it doubtful, whether it was of the same character at all seasons and places where it made its appearance.

The malignant pestilential fever, yellow fever, and yellow remittent, were some of the names which it received; and it is not very easy to decide, from the accounts which have been transmitted to us, whether its character was inflammatory or putrid.

No accuracy of decision, on this question, is attempted; in the first place, because the facts and descriptions are sometimes too discordantly related to admit of it; and in the next place, because, as the mercurial practice is adopted successfully in both, it is of less importance to ascertain it.

A glance is taken of the opinions of different writers on the proximate causes of these diseases, and some opinions hazarded on the question whether any definite and precise boundary can be assigned with respect to their remote causes; and whether the character of contagion is necessarily attached to either the one or the other of the two great reputed sources marsh miasmata and animal excretion.

Brief accounts are given of the fever generally denominated the yellow fever, as it appeared in various parts of the West Indies; and, as means of elucidating them, particular cases are detailed, so abbreviated, however, as to contain facts only, which immediately comprehend the treatment adopted, the

effects of the medicine administered, and, when practicable, the discoveries which dissections had afforded.

As the mercurial practice in fevers is in some measure new, at least in the extent to which it is now adopted, every fact upon which it rests should be examined, that if possible, it may be ascertained whether it stands on a proper foundation for a permanent remedy. But minuteness of detail in medical cases is generally of very little use, excepting in such as elucidate some new principle in the animal economy, some before unknown pathological fact, or some remarkable effect of medicine administered.

The hitherto doubtful utility of the practice, and the apparent subversion of the ancient theories, and even opposition to established principles, it is presumed, will be received as an apology for inserting particular cases.

In the course of this examination it will appear, that the character of phlegmasia has been considered as particularly authorizing the mercurial practice.

The determination of diseases to particular viscera being the state to which mercurial medicines were supposed to be especially adapted, this practice has been applied to intermittents, in which the same circumstance of special determination was believed to exist.

In the second part therefore will be included some observations on that subject, which, as but few instances have appeared in the vicinity of Boston, will be taken chiefly from foreign accounts.

The third part will contain a sketch of some of the febrile diseases, which have prevailed within the last thirty years in the eastern part of the States, particularly in Massachusetts.

Typhus has at several times been an endemic in this state; and the yellow fever has twice been epidemic in the town of Boston. The histories of those two diseases will be given, with the methods of treatment; the success of mercurial practice, and such information as could be derived from dissections.

Cases will be subjoined for the purpose of exhibiting the particular practice which was adopted by the physicians of this metropolis.

The fourth part will contain a short account of the endemical and epidemic diseases which have appeared in this place, both subjects of mercurial practice.

Some of those most common belonging to the class specifically contagious, are small pox and measles. With the former the people of New England claim special acquaintance, as the change which it has undergone in their hands from mercury and inoculation has been such, that it may be said in some sense to have assumed a new form from their modification.

Throat distemper and dysentery have, from an early period, been known at times to spread their ravages through many of the country towns, and some of the seaports of New England, and from their singular malignity are entitled to consideration.

THERE are few places in the world where the victims of phthisis are known to be more numerous than in the Eastern States; and as some eminent physicians have treated it with mercury, it will therefore have a place.

BRIEF remarks on some other diseases which at different seasons make their appearance, but generally are sporadic, will be added, without professing to treat methodically upon either of them; with the double view of exemplifying the mercurial practice, and of presenting a small contribution to the medical annals of our country.

IN this pursuit I was led on to an examination of the epidemic and other diseases wherein these medicines had been so largely adopted; and, finding the subject more ample than I at first conceived, and that it had swelled to a size far beyond the proper limits of an occasional communication, I determined to read at the annual meeting of the society only the pages containing the first part, together with a few practical observations by way of deduction from the facts which were offered, and submitted the whole to their disposal.

MANY facts are yet wanting to ascertain precisely to what symptoms, or to what proximate causes the mercurial practice properly applies, or wherein mercury may not only safely, but advantageously be administered.

COULD a line be fairly drawn between the diseases in which it is prejudicial, and those in which it is advantageous: and could the mode of administration

be accurately prescribed, much of that mischief which has originated from an indiscriminate use of this most active class of medicines might be avoided, and many a constitution be saved from ruin.

WITHOUT professing to accomplish these purposes, if by these sheets I should be so fortunate as to put others upon this inquiry, one object of the publication, at least, will be attained.

MERCURIAL PRACTICE

IN

FEBRILE DISEASES.

PART I.

SECT. I. GENERAL HISTORY OF THE PRACTICE.

THE use of mercury in fevers was little known till about the middle of the last century; and it is only within a few years, that it has been brought into general notice as a febrifuge, or, as some have considered it, as a specific in fever of contagious character. It has, however, been gradually gaining admission into the practice of the first medical men in the United States, particularly in New England; and, at length, constitutes a very important part of the curative treatment of these diseases.

So numerous are the genera comprehended under the class of pyrexiæ, and so great a proportion do they bear to the whole catalogue of diseases; that an inquiry into the history, local peculiarities, and proposed methods of cure, must for ever be one of the most interesting employments of the physician and the philosopher.

It was my original intention, in this discourse, to have given a general description of the different forms of contagious fever, most prevalent in this and the neighbouring states, for the last twenty years; chiefly, with a view to ascertain the merits of the mercurial method, which has been adopted within that period. The epidemics have accordingly been particularly the objects of attention. But, as endemial and sporadic diseases have also become the subjects of this treatment, they could not properly be passed over, in making this estimate.

Mercury has been very aptly denominated the Sampson of the Materia Medica. It is the dictate of prudence to be assured, before we admit it into the strong holds of the system, whether it will act the part of a friend, in defending it against the disease that assails it; or, whether it may not be likely to pull down the pillars of the human constitution. That such suspicions have existed, a history of this practice sufficiently evinces.

In investigating the effects of this medicine upon the human body, the subject naturally divides itself into the following heads:

The nature of the medicine, and of its preparations;

Its general operation upon the living body;

The particular diseases in which it has been administered, and the effects produced.

Under the first of these heads, it would be proper to examine such preparations of mercury as are in common use.

UNDER the second, to ascertain the manner of their operation upon the human constitution.

UNDER the third, to collect the experience of such practitioners, as have been in the free use of them in febrile affections, in order to determine in which of them it has proved salutary.

AS it would be of no advantage to shew, that mercury is useful in any particular disease, unless its symptoms are so minutely described, that the nature of it may be thoroughly comprehended, and, that when, in future, it shall make its appearance, it may be known to be the same affection, the history of those diseases should be noted, and particular cases subjoined, exemplifying the character of the complaint, and the method of treatment which was adopted.

AT present, those only of the febrile class of diseases, in which mercury has been considered as an appropriate medicine, will be adverted to. Small-pox and measles constitute the division of what may be called specifically contagious diseases; pestilential malignant, and yellow fever, typhus, cynanche maligna and dysentery, that of infectious fevers; cynanche trachealis, hydrocephalus internus, peripneumony, phthisis and rheumatism, the inflammatory class, in the cure of which, this method has been adopted.

THAT all of these may be properly considered as belonging to the class of pyrexiæ, will probably be generally allowed, whatever may be the difference of opinion entertained respecting their proximate causes.

THERE was a strong prejudice prevailing among the ancients against mercury. Galen considered it as a poison, which was unfit for use as a medicine; and some physicians were of opinion that it destroyed the stomach by eating holes through the coats of that organ.

THE first, who used it as a medicine, were the Arabians, who cured diseases of the skin by an external application of this metallic substance, in form of an ointment.

MR. ASTRUC thinks, it was from analogical reasoning adopted as a remedy in lues venerea, which was found to be frequently accompanied with cutaneous eruptions.

THE red precipitate appears to have been the first preparation used internally; and to this succeeded the use of argentum vivum, with rhubarb and other articles, in form of a pill.

MERCURY had seldom been used in any other than venereal complaints, till about the year 1735, when it was adopted as a remedy in the disease called the throat distemper. It had, however, according to an account published by Dr. Holyoke, in the first volume of the New York Medical Repository,* been introduced in Boston by a disciple of Dr. Pitcairn.

DR. BENJAMIN GALE, of Connecticut, in a dissertation on the inoculation for the small-pox in America, says, mercury in small-pox was resorted to first in the American colonies in 1745, when it was em-

* Page 500.

ployed with success by two eminent physicians, Dr. Thomas, of Virginia, and Dr. Muirson, of Long Island. There is no doubt, that the mercurial practice in fevers first obtained credit in America, while many prejudices prevailed against it in Europe.

From the supposed efficacy of this remedy, in the ulcerous sore throat, it was administered in other fevers; and was found useful, particularly in pleurisies and peripneumonies, which were much more prevalent fifty years ago, than at the present day, as well as in quinsies, inflammatory rheumatisms, and other phlegmasiæ.

But, however successful this practice might have proved in the hands of the most skilful practitioners of that day, it is certain, that till within these twelve or fifteen years, it had been gradually losing reputation, or at least falling into disuse, from doubts and uncertainties with respect to its effects on the human constitution.

The prevalence of the yellow fever in the West Indies, and some of the southerly parts of the American continent, has, however, been the means of introducing it again to the attention of the faculty. In that most formidable disease, perhaps partly from accident, and partly from analogical reasoning, mercury has been exhibited in quantities, which would formerly have been considered as inevitably destructive. It had been previously prescribed in inflammatory affections; and, as this fever had frequently as-

sumed that character, and a great variety of other means had been used without success, it was natural to resort to it; and that Herculean disease was attacked with a medicine, whose powers were supposed alone equal to its expulsion.

Whether the yellow fever was first introduced into the West Indies in the year 1793, as Dr. Chisholm intimates; or whether it had been known there as early as the seventeenth century, and from that period had frequently visited, or originated in these islands, it is probable he was, if not the first, one of the earliest practitioners, who considered mercury as the only medicine to be relied on for its cure.

The dissections, which had been made for the purpose of ascertaining the proximate cause of this disease, had, in some measure, demonstrated the nature of it; and had proved, that the liver was one of the organs most immediately affected, or in which the marks of derangement were most conspicuous.

The known efficacy of mercury in glandular disorders, with its supposed appropriate determination to the liver, was the circumstance which led to the experiment; and to this may be added an opinion not even at this day entirely exploded, that by some specific action of this remedy on the contagious matter, as in lues venerea, the poison was subdued and expelled from the habit. It was soon after adopted as the most certain method of controling the ravages of the yellow fever; and has gradually, from this period, insinuated itself into the method of treat-

ment in fevers of almost every description; at least in this metropolis.

That a medicine, against which such strong prejudices existed, a medicine, the operation of which was so directly opposed to the established indications of cure in inflammatory diseases, should have obtained such ground within the short period of fifteen or twenty years, is a singular occurrence in the annals of our profession.

The Physicians in New England, who first used mercury, were obliged to conceal it from the knowledge of the patient; and, if salivation ensued, which however for this reason was generally as carefully as possible guarded against, they were sure to incur the resentment of the concerned.

In the small-pox, indeed, it had been adopted, especially as part of the preparatory process for inoculation; but even here it was submitted to as an evil almost as formidable as the disease for which it was administered; and a promise of carrying the patient through it without recourse to that medicine, insured the practitioner popularity and employment.

A circumstance that evinces the strength of this prejudice, occurred in the year 1774. Dr. Latham professed to practice the Suttonian plan of inoculation, which was given out to consist in a mode of preparation, in which no mercury was used. On the faith of this supposition, a large hospital was filled with patients in a neighbouring town, and

several classes passed through the distemper with about the usual success. One of the persons in the hospital suspicious of his having taken mercury, had some of the pills which had been given to him, analyzed, and a quantity of quicksilver was revivified from them. Information of this circumstance getting to the ears of the public, a general indignation was excited against the inoculator, as using a noxious and deleterious medicine; and the business of inoculation was soon after suspended.

Thus was this article secretly used among physicians; and the quantities which they ventured to prescribe were such as at the present day would be considered as of very little importance in the curative process. One or two grains a day was as much as was considered safe in violent diseases, and even by that quantity the constitution was suspected to be weakened; and whatever disease happened within ten or fifteen years after the use of it, was imputed to the influence of this medicine. Instead of one or two grains, one or two hundred grains a day have of late been administered, and, as its advocates declare, with safety and advantage.

SECT. II. MERCURY AND ITS PREPARATIONS.

It is well known that mercury in its native form, or quicksilver, has no effect upon the human body, in whatever quantities it may be taken, otherwise than by its ponderosity.

THE various preparations of this mineral, in which the globules are rendered invisible, possess various degrees of activity in consequence either of the chemical or mechanical changes which they undergo in the process.

THERE are several forms of this medicine in which, by some, the change has been considered as the effect of mere trituration and mechanical combination with certain other substances. The blue pill and common mercurial ointment were the articles in which this mode of combination was supposed to take place.

IT is well known that by triturating for a short time (a few minutes) a quantity of quicksilver with honey and rhubarb, the globules will disappear, and the article be converted into a medicine of very different properties from what it possessed before the operation. From the facility with which this is effected, it has been urged that it was impossible that any oxygen could have entered the composition. If this change is produced by mere mechanical mixture, the only difficulty is to reconcile the activity of its operation with the inert nature of the metal itself, which is said to have been swallowed, frequently to the amount of one or two ounces a day, by many persons, under a foolish persuasion that it secured them from contagion. The preparation of the mercurial ointment too was supposed to consist in the mere trituration of the metal and its minute division and mixture with the lard that was used in the pro-

cess. It has been urged that in this form also it was improbable that the metal should have become oxidated, because lard has a stronger affinity to oxygen than mercury, as appears from boiling lard with an oxide, when the metal will be revived, at least in considerable proportion.

It has therefore been concluded that neither of these preparations possesses the property of an oxide of mercury.

Dr. Glover seems however to have satisfactorily proved, that oxygen actually enters into combination in both these medicines.* Having carefully triturated a quantity of quicksilver with rhubarb and molasses, until the metal disappeared, he submitted it to the test of washing, which was calculated for the purpose of determining whether the mercury had undergone a chemical change. The rhubarb and molasses are readily miscible with water, the quicksilver not so. On the supposition that the particles of the latter were only divided and mixed with the other articles, the metal ought to have subsided as soon as the rhubarb and molasses, which were interposed between its particles, were suspended in water. On rubbing the blue pill in a mortar with water, and repeatedly pouring off the liquid, till the powder or syrup was fairly washed out, there was no revivification of the mercury, but this part of the composition fell to the bottom of the vessel in the

* Vide Medical Repository, vol. 6, p. 244.

form of a black oxide. It was therefore chemically changed by the preparation.

The oxidation of mercury in the blue ointment is rendered extremely probable, from the obvious difference in the effects of bland and rancid oil, or lard, upon this substance, when exposed to their action by trituration. That it owes its rancidness to the absorption of oxygen is incontrovertible; and that the most rancid lard will soonest extinguish the globules of quicksilver, is equally certain. In the act of trituration, the particles of this metal are exposed in all directions to the action of those of the lard, the superoxygenation of which adapts it to the purpose of reducing that substance, by parting with a portion of its oxygen. As even the most recent lard contains a quantity of this principle, it seems probable, that in all cases, when it is used for a similar purpose, it produces the change by means of its oxygen.

Experiments have been made for the purpose of determining this question on the principle of an increase of gravity in all bodies which absorb oxygen. As most of them have been made, however, by trituration with certain substances, which were capable of supplying a sufficiency of oxygen to oxidate the quicksilver, the weight of the compound could not have been affected, the quicksilver gaining as much weight as the other articles lost, and consequently the result was inconclusive.

Mr. Alyon asserts, that mercury is oxidable even by agitation in air. Whether he weighed the oxide after this operation, I have not been informed; but, admitting the truth of this proposition, there can be no future doubt of the absorption of oxygen in the variety of preparations of mercury; and this would very naturally suggest the suspicion, that the activity of the medicine, in its various forms, on the human constitution, is not only dependent upon, but proportionate to the quantity of this substance which enters into their composition.

Oxygenated muriate of mercury contains most oxygen, and accordingly is the most active of the mercurial preparations.

SECT. III. THE GENERAL OPERATION OF MERCURIALS ON THE BODY.

There appear to be only three modes in which the phenomena attendant on the use of mercurial medicines can be explained.

Their mechanical operation on the fluids.

Their specific action on the noxious matters themselves in the animal body, separate from the consideration of the diseased actions in the body.

Their action as a stimulus on the system.

Mechanical action. The superior specific gravity of quicksilver gave origin to an opinion, that, whatever were the effects it produced upon the body, they were to be imputed to the momentum of its particles circulating in the blood, after having

been minutely divided by the digestive organs, and received into the mass through the lacteals and thoracic duct.

THE discovery of the circulation, about the middle of the seventeenth century, led to the application of mechanical principles in explaining the animal phenomena. The theory of obstruction corresponded with this hypothesis; and mercury was conceived to remove those affections by the force with which it impinged upon the resisting particles of peccant matter which it met with, either in the larger blood vessels, or their capillary ramifications.

WHEN these particles were determined to the intestinal canal, and operated as purgatives, they were considered as expelling the morbid matter accumulated in these passages; and when to the glands, the salivary in particular, they were supposed to carry with them the poisonous substances, which had been retained in the system. While passing through the small vessels, they were believed to attenuate the too viscid lymph and other constituents of the mass of fluids; to force through obstructing matters, contained in the vessels, by an impulse proportionate to the weight of the particles of mercury; and thus to promote a freer circulation, and the removal of disease.

MR. ASTRUC says, the globules of mercury, in proportion to their momentum, must increase the circulation by more forcibly striking against the sides of the vessels, and, that wheresoever the poison

is lodged, whether in the blood vessels, glands, or other parts, the mercury will seek it out, subdue, and at last expel it by some of the secretories of the body.

But the form which mercurial preparations, in their extremely divided state, must assume in the blood, is such as to render this theory utterly untenable; for, though it may be very difficult to detect their chemical properties, yet, if they acted upon mechanical principles, they might undoubtedly be discovered by their weight; whereas no such ponderous particles have been demonstrated in the blood: nor, if there were any, would it be easy to account for such an elective power upon the poison.

The second solution of the modus operandi of mercurial medicines, supposes the specific operation of this agent on certain morbific matters in the system. It would be still more unphilosophical than the first, and having been assumed as a cloak for the ignorance of its advocates, it has been rejected by a more enlightened theory.

Physicians, at the present day, recognise no specific medicines; and are willing to keep open the door of investigation on such subjects as are unexplained, by acknowledging their want of information, and exciting an inquiry into the more abstruse and unexplored regions of medical science.

The opinion, that mercurial medicines produce their effects on the body by acting as stimulants, is probably the most prevalent and the best supported of any yet advanced.

THE property of irritability in the animal body is the basis on which this doctrine is constructed.

STIMULANTS may be defined to be such powers as are capable of increasing the action of parts. This they do by operating on the irritable fibre, even when separated from the brain; and by producing sensation under other circumstances. The most obvious effects of mercurials on the body are such as correspond with the phenomena of excitement, or the action of a stimulant, on the irritability. Whether it be called by the name of irritability, or excitability; whether it be considered as existing separately and independently in particular parts, or as one entire aggregate through the whole system, it is certain, that the natural, as well as diseased actions of the body, depend upon certain agents which operate upon it.

THAT mercury, in a combined state, is a stimulant, is evident from the following considerations.

MERCURIAL preparations increase the action of the stomach and intestinal canal. The peristaltic motion of those organs is by most of the preparations of this mineral sensibly, and by some of them *powerfully* excited; and the emetic and cathartic effects are among their most active properties.

THEY act very powerfully on the glandular organs by increasing their secretions, and promoting discharges from the excretories of the skin, salivary glands, and other emunctories, almost without exception, throughout the body.

They increase the action of the heart and arteries, quickening the pulse in some instances, and in others rendering it stronger and fuller; consequently increasing the momentum of the circulating blood, and in this way rousing the whole system into action; and it is this action which constitutes the febris mercurialis of salivated patients.

SECT. IV. OPERATION OF MERCURIALS AS STIMULANTS.

Whether mercurial preparations produce their effects by acting upon the surfaces to which they are applied, and so affecting other parts of the system by sympathy, or whether they are absorbed into the vessels, and hence extend their stimulant powers over the body, has been questioned.

That the emetic and cathartic operation of these medicines depends on their action as compound bodies on the stomach and intestines, I should suppose would hardly be denied, when it is considered, that no known powers exist in these organs, capable of decomposing them so speedily, as those effects are observed to take place. If the ordinary powers of digestion were capable of deoxygenating mercury within their cavities, according to the common rules which govern that function, a longer space of time, it should seem, would be required for the purpose. It is known that no degree of heat exists in the stomach sufficient to reduce these oxides; we may,

therefore, venture to conclude, that their evacuant effects depend upon their compound action on the surfaces to which they are applied.

It may be next inquired, whether these medicines are absorbed into the blood-vessels, being taken up by the absorbents of those surfaces, and carried into the common mass of blood, thus pervading the ultimate ramifications of that system, even to the secretory organs and exhalants of the body; or whether they act upon the glands, and other remote parts, from sympathy alone.

If it could be proved, that they exert their whole effect upon the first passages and the absorbent surfaces in general, there would be no reason to suppose the necessity of any absorption into the system. It would then be granted, that they acted in the same manner with opium, ardent spirits, and animal nutriment, upon first entering the stomach, with an almost infinite number of other articles, many of which have never been supposed to be absorbed.

The phenomena of salivation might then be solved on the principle of sympathy; and both the metal and the oxygen be considered as essentials.

On the supposition that the very extensive effects of those medicines upon the constitution are not to be accounted for on this hypothesis, search has been made for them in the blood and other fluids.

If no deoxygenation could have taken place previous to absorption, (admitting absorption to have taken place) the mercury must have existed, at some period, within the system in its compound state.

For the purpose of detecting any mercury that might have been absorbed into the mass of fluids, I had a number of experiments made upon a patient under the full influence of a mercurial course. In eight days he had taken two hundred and eighty-seven grains of calomel, and used eight ounces of strong mercurial ointment by friction. The experiments were little varied from those of Dr. Physick, made in Philadelphia, with the same views, and the results were the same. They furnished no evidence that either the blood or the saliva was impregnated with the metallic substance.

But these experiments, it is apprehended, are not sufficiently conclusive to prove that mercury is not absorbed into the system. It is possible, that some minutely divided particles may lurk in the fluids, though under such forms as to elude discovery. In its combined state, within the blood, it must possess properties very different from those of the simple metal; and its oxygen may render it insusceptible of discovery, by the tests which have been employed.

The phenomena attendant on its use justify this conjecture; and that there are many other substances existing in the blood, too subtle for investigation, the phenomena of poisons and of contagion seem to prove.

Drs. Beddoes and Girtanner originated the doctrine, that mercurial medicines act in consequence of their oxygen alone; and Dr. Alyon declares, that he has prepared an oxygenated ointment, which was

far superior to the blue ointment, and which produced the same effect; and that the hyper-oxygenated muriate of potass, more certainly heals venereal ulcers, than any preparation of mercury.

It may be true, that oxygen is an essential constituent of most salivating medicines; and yet, that the activity of mercurial preparations may not depend upon this alone. Opium and seneka, it has been observed, will salivate also; but no oxygen is furnished by these articles.

That the general stimulant power of oxygen is strengthened and extended, by its union with the quicksilver, appears probable; and several considerations favour the conclusion, that it is absorbed into the blood vessels, besides the fact that no separation of the two constituents is evinced by deoxygenation in the stomach.

Mercury is found to produce no sensible effects upon the salivary glands, even in the highest doses, in less than twelve hours; but if it operated in this way, sympathetically, or as a stimulant, merely by first acting upon the surfaces of the primæ viæ, or of the skin, it might be expected to act sooner. This seems to support the opinion of absorption.

Dr. Chisholm says, that oxygenous gas, obtained from mercurial oxides, almost always holds a quantity of mercury in solution; and Chaptal saw two instances of speedy salivation, where it had been used for diseases of the lungs; a strong instance of the facility with which this form of administration

may be used. From breathing pure oxygen alone, we do not learn that salivation has ensued.

Oxygen from the oxygenated muriate of potass will not salivate.

That which is furnished by the nitrous acid, which is thought by some to partake of metallic properties, will uniformly salivate in hot climates.

The use of the metallic part of the preparations of mercury, as well as the last mentioned article, may be to convey the oxygen to all parts of the system, there to suffer a gradual evolution of this part of the compound, in an equal and uniform manner, and communicate it to every part of the body; thus acting as a powerful stimulant upon the blood vessels, particularly pervading the glands, exerting an increased action in their secerning and excretory ducts; for the purpose of effecting which, the nature of the oxide, and the universality of its distribution, are so admirably adapted.

There are several ways in which these medicines are employed, with a view of introducing them into the system; but all of them are by the skin, or the alimentary canal. By the latter, comprehending the stomach, the large intestines, (when by enema,) and the inside of the mouth, the introduction of the medicine is, in general, easily effected; but by the former, it is sometimes found to be not readily accomplished.

The absorbents of the skin have been thought freely to imbibe such articles, especially in a fluid

form, as are presented to them, unless their peculiar qualities prevent their admission. Modern discoveries, however, have rendered it doubtful whether such powers exist in the degree, which has been generally believed; and have proved, that without mechanical means, (forcible frictions,) it is difficult to introduce medicines in this way. This difficulty may on some occasions render it necessary for the physician to avail himself of all the auxiliary means which he can command, to effect his purposes; and in no cases is this more urgently called for than in those where the speedy introduction of mercury is demanded by the violence of disease, and yet the irritability of the stomach is such as precludes the administering of it through that organ.

THE orifices of the absorbents are so seated under the cuticle, that it is, sometimes, almost impossible to make mercurial unguents enter them, without removing that covering.

DR. CURRIE immersed the body of a patient, for a considerable length of time, in warm water, of a temperature from 87 to 95 degrees, in a state of great inanition from fasting; and, on comparing the weight of the body after the experiment, with that which had been noted before it, found little or no increase from absorption.

M. FOURCROY has published a number of experiments made by M. Seguin, which confirm the same fact.

THE vapours of turpentine, garlic, musk and camphor, being respired, the urine becomes strongly

impregnated with these substances; but by immersing the arm in them, and anointing the body with them, without admitting the vapours into the lungs, no such effects ensued.

In whichsoever way, whether by the skin or by the mouth, mercury is received into the system, the preparation probably undergoes a gradual decomposition, by a sort of digestive action of the vessels, the metal giving, if I may use the expression, a kind of fixation to the oxygen, by which it is conveyed and applied to the extremities of the secreting or exhalant vessels.

That it actually pervades the system, and passes through the cutaneous vessels to the surface of the body, is evinced by its there producing the proper mercurial influence upon such other metallic substances as are exposed to it, for instance, in the hands or pockets of the salivated subject.

Admitting that the medicine is thus actually absorbed, it is true, on the supposition that the oxygen is partly expended upon the blood or solids of the body, it would be reasonable to expect, that the metallic part of the medicine should, some where, appear in its separate form.

But is there any thing unphilosophical in conjecturing, that this deoxygenating operation may be a mere animal process, the vessels not only separating the oxygen from the metal, for certain purposes, in the mass of fluids, but also expelling the latter from the surface, in such manner as not generally to admit of detection?

Who is sufficiently acquainted with all the circumstances of digestion in the stomach, to pronounce, absolutely, upon the nature of that function, or upon the changes which the variety of substances which are exposed to its action undergo? The processes which take place within the blood vessels and the absorbent and exhalant system, are equally concealed from our researches.

That mercury in a revivified form has sometimes been found in the body, there are many apparently well attested cases to support.

Dr. Hamilton detected globules of quicksilver in the milk of a salivated woman.

Fourcroy's authority may be adduced to confirm a similar fact when he declares it as his opinion, that the hydrargyrus found in the bones arises from the superabundant part of the oxygen being absorbed by the stomach.

The above reasoning, with respect to the stimulant effects of mercurial oxides in the system, seems to derive some support from a fact attested by several writers of high authority, that in intermittents (particularly) speedy cures are effected by recourse to those remedies; but that oxygen from oxygenated muriate of potass is of no use whatever.

If this be true, is it not strong evidence of the instrumentality of the metallic part of those combinations, in consequence of their absorption into the blood?

SECT. V. OPERATION ON DISEASE AS STIMULANTS.

THE absolute effects of mercury on the body, having been thus, in some measure, ascertained, the most interesting part still remains, which is, to determine how far the properties of this medicine are adapted to the cure of febrile diseases.

IF the process of deoxygenation does ever actually take place within the body from vascular action, there is no doubt but that some very important purposes are answered by the oxygen thus disengaged in the system.

THAT some fevers may be attended with a deficiency of oxygen, has generally been supposed; and, if this is the case, there might appear to be some plausibility in the conjecture, that mercurial oxides may supply this deficiency.

THERE are certainly very important differences in the forms and symptoms of fevers, from which the indications of cure are to be deduced. So difficult is it, however, to discover their proximate causes, that some physicians have despaired of attaining them, and confined themselves to symptoms alone.

REMOTE causes are still more uncertain, but that different remote causes must produce different forms of disease, is so obvious, that they have been divided into two, marsh miasmata, and human effluvia; and a general division of pyrexiæ has been made into putrid and inflammatory.

Dr. Huxham was of opinion with Hippocrates, Galen, and most of the ancient physicians, that fever in general is an effort to expel morbific matter. The offspring of this theory was the doctrine of concoction, and the distinction of critical days its consequence.

Some distant analogies between this doctrine, and the opinions entertained with respect to contagion, led modern practitioners to the use of mercury for the fevers in which this quality was discovered.

The humoral pathology having been of late nearly exploded, this practice was at first adopted with very limited expectations; but on experience of its benefits, a new theory was found necessary to explain its modus operandi, and the supply of oxygen to the blood was supposed to afford it.

M. Fontana, having made a number of experiments with the poison of a viper, on the living blood vessels and nerves of a rabbit, found, that when applied to the nerves, it produced no effects upon the body, but, when presented to the blood vessels it was followed by all the usual symptoms of that virus. The nitrate of silver was found to destroy the activity of this poison, and muriate of mercury that of the venereal virus. Here the oxygen was supposed to be the cause of the change, operating on parts most susceptible of the poison. Dr. Russell, in his account of serpents, asserts, that the famous medicine known in the East by the name of the snake-pill, which is said never to have failed of curing the bite of the

most venomous serpent, consisted of the oxides of mercury and arsenic.

Dr. Cruikshank, of Woolwich, in March, 1795, destroyed variolous virus by oxygenated mucilages.

Without, however, supposing that oxygen has a specific power over the poison, in these cases its action may easily be accounted for on the principle of a stimulant exciting the system to defend itself against it, or totally to expel it.

It is a well known fact in pneumatic medicine, that oxygen prescribed in small quantities invigorates the constitution, without exhausting the excitability.

May we not then conclude it probable, that mercury may cure contagious fever by furnishing oxygen to the blood and the solids by a sort of digestive power separating the oxygen and, perhaps, expelling the metallic part of the oxide from the surface of the body; and, that the success with which it has been used in putrid fevers, in which the deficiency of oxygen is generally, I believe, acknowledged is derived from its supply.

Indeed, Dr. Darwin supposes that the sensorial power, which is in fact the same thing with excitability, is secreted in the brain from the oxygen in the blood. If so, the utility of the mercurial oxides in supplying the mass with that material is obvious; and it needs not to be remarked how much this circumstance must co-operate with the stimulant effect of the oxygen, in increasing the sum of excitement in the system.

SECT. VI. OPERATION OF MERCURIALS, AS EFFECTING A CHANGE OF ACTION IN THE SYSTEM.

BUT besides the effects of mercurial oxides, operating immediately as stimulants on the vascular system, and furnishing a quantity of oxygen for the blood, there is a third principle, by which the action of the medicine in disease may be accounted for, and that is the change it produces in the constitution of the patient.

A NECESSARY consequence of the highly stimulating power of mercurial oxides upon the system is the universal revolution which the constitution must undergo whilst subjected to their influence.

THAT certain functions of the animal body acquire a relation to each other from habit, independent of that unknown principle of connexion between different parts which has been denominated sympathy, is an undeniable fact. The order in which those actions originally take place is, perhaps, dependent on the nature and the structure of the parts.

THERE is an aptitude in the body to repeat actions, which have been once performed; the oftener they are performed, the more likely are they to be reiterated; and thus a habit or association between them is, at length, established; and the strength of

that association depends, cæteris paribus, on the frequency of the repetition. Hence the functions of the animal body depend in a great measure on this principle.

The habit of action in the stomach, in calling for food at the accustomed hour of the day; and in the muscles in general, in accommodating themselves to a state of action at the usual hour of awaking in the night; the motion of the limbs in particular directions, the interruption in the order of which immediately produces confusion; and of the eyes, when moved in any other direction than that which is necessary for the meeting of their axes, are all dependent on this principle.

Diseases stand in the same relation to the whole tribe of animal functions, as these interruptions do to the established order of voluntary motions. But no sooner is the natural order of action broken, than a new train of motions ensues. Diseased actions, as well as healthy, become associated with each other, and a new order of affinity, if the term may be used, takes place among them.

A remote cause then, calculated to interrupt the regular order of the healthy actions, if extremely powerful, may suddenly dissolve it; and thus, a person may be reduced, without any predisposition, to extreme danger from the violence of disease, whilst a more moderate cause would leave the constitution free from injury. On the other hand, if predisposition existed, a cause much less active would be required to break the healthy associations.

By whatever means this new or diseased train of motions is introduced, the longer it exists, or the oftener the actions, in which it consists, are repeated, and the more completely these actions are changed, or the farther they are removed from their natural order, the more difficult it will be to restore them. So that the longer the disease has existed, and the more violent it is, the stronger will be the force of the new associations, and more powerful must be the means to destroy them.

That these morbid habits or associations do take place, as well as the healthy, is proved by a great variety of phenomena in febrile diseases.

The person, who has been afflicted with a tertian of two paroxysms, will with more difficulty be cured after a third. The inverse of this proposition is established in the fact, that, if one paroxysm has been broken, and the period of it passed over, the next will either be more easily prevented, or will return with less violence, than the preceding. The same thing is probably true with respect to the regular evening exacerbations of continued fever; if the patient by any means be made to miss one of them the return of the next may be more easily prevented.

It is this important principle in the animal economy, that appears to me more rationally to account for what is called the vis medicatrix naturæ, than any other that has been assigned. It is probably the same with what Hippocrates called Nature, and which was described by Stahl as the soul directing the motions of the body. This salutary power, till totally

destroyed by chronic and confirmed disease, is ever operating in the animal body, to overcome the morbid catenations; and, as the remote causes of disease seldom continue in operation for any length of time after the disease commences, the force is sufficient of itself to restore the healthy order of actions, provided that by any means the new order of diseased actions be broken. For the purpose of breaking the association of diseased action, medicine frequently becomes necessary; and so soon as this is effected, the accustomed order of the healthy habits immediately takes place, and, like the power of elasticity, restores the body to its usual state.

It may be objected, that health is frequently restored without medicine to break the morbid catenations. Is it not possible, that even the stimulus of external agents, such as healthy food, the natural proportion of oxygen in the air we breathe, and in the fluids taken into the body, without which life cannot be maintained, does, in diseases of moderate force, imperceptibly indeed but very effectually, break the new association, though with less expedition and certainty, than when aided by medicine, and thus restore the system from diseased to healthy action.

In diseases of great violence, as in many of the pyrexial class, these common agents are not sufficient to effect this purpose. Medicines, therefore, active in proportion to the violence and continuance of the disease, are required to break the association, which

being effected, the vis medicatrix, or the established order of healthy relations, takes place.

Many circumstances appear to confirm this theory. Diseases are frequently known to be entirely changed, suspended, or cured, by the occurrence of causes calculated to produce very powerful effects of any kind upon the habit.*

Terror has often removed, or prevented diseases. The instance related by Kau Boerhaave is well known, in which the recurrence of violent fits was prevented by threatening to bore the tongue with a hot iron. The horror excited by the swallowing of spiders has often cured intermittent fevers by changing the actions of the system, and thus preventing the return of the paroxysms. The sudden plunging of maniacs, or epileptic patients, into cold water has sometimes effected a cure by the same means. The Indians cure fevers by sweating with heat, and then plunging the body into cold water. That one disease is cured by another, and that all are cured by their contraries, was the doctrine of Asclepiades ;† and it is

* Upon this principle, with due limitations, may be adopted the aphorism of Dr. Jackson in his treatise on fever. Decided practices of whatever description succeed; and the complete recovery of health in the same disease is frequently the effect of means directly opposite; but what is done, ought to be done whilst the disease is forming, not when actually formed.—P. 255.

† This doctrine seems to have been misapplied by the University of Salamanca, in prohibiting bleeding in local diseases; except in the side opposite to the affected.

well known, that the system will not admit of two general diseases at the same time; thus rheumatism is cured by a fit of the tertian.

The febris mercurialis is an artificial disease which, by removing the original, throws the patient into the hands of art, and gives the physician the advantage of employing his skill upon a state of action better understood, and more easily controlled, in most cases, than that of the primary disease.

SECT. VII. OF SALIVATION.

It is a question of some consequence, whether it is necessary to salivate in order to cure fevers. As the natural effect of this process is to produce indirect debility, it seems to be generally agreed, that in most cases of fever, especially those of the less violent kind, salivation may with propriety be avoided. It is doubtful, however, whether mercury will generally produce its salutary effect in the habit, without stimulating to a degree that shall affect the mouth; but, as the soreness of the gums and mouth is the only index of the degree to which the mercurial impregnation of the blood is carried, this mark is usually aimed at, as a proof that the object has been attained.

But the expediency of salivation seems to depend on the nature and violence of the disease; and it has been judged safer, by large and frequent doses to risk salivation, than to endanger the life

of the patient by delay, especially as this more certainly produces a new order of things in the constitution. And this more decided character of morbid affection, on Mr. Hunter's theory, will more certainly cure the original disease.*

Whether the exhibition of mercury is safe and proper in all the stages of fever, is also a question of much importance in practice.

As an evacuant it may doubtless be used in any stage of the disease. It was, indeed, an axiom of Hippocrates, that purging in the beginning of diseases was dangerous; but as his opinion was founded on the doctrine of concoction, little attention is paid to it in modern practice. Mercurial cathartics have in some instances been preferred, particularly in malignant and pestilential fevers, on the idea of their more particularly cleansing the biliary ducts; but it is doubtful whether they differ much in that respect from others. However, as they are more easily administered, and the stomach is in many cases more likely to retain them, they are often the most proper means for emptying the first passages.

With this view, according to Dr. Rush, Mr. Anderson and some other eminent physicians, they are

* Hector M'Lean says salivation sometimes puts an end to the disease, but becomes itself a new one. Richter is much of the same opinion. Vide his medical observations.

The former thinks salivation is a dangerous practice in warm climates, and yet it is in those where it has been so extravagantly applauded.

of the utmost consequence in fevers of the malignant kind. But some reasons have led to doubts, whether mercurial purges are more beneficial than others as has been supposed, especially when carried to the degree that has been recommended.

The reduction of stimulus and the expulsion of morbid bile were the objects of this practice, but other purgatives may answer the same purposes in proportion to their activity alone.

Dr. Rush, having noticed the success of accidental salivation when mercury had been employed for purging, was first induced to make use of it with other views. In the first stage of inflammatory fever, attended with effusions in the throat, he ascribed its success to its action in diverting them from the more vital parts. In the second stage he considered it as a stimulant, and aimed in all cases to produce salivation as soon as possible.

Dr. Jackson, in his treatise on fevers endemic and contagious, thinks the use of mercury proper only in the sinking stage. Dr. Fordyce, on the contrary, rejects it as too apt to produce evacuations, and therefore by no means proper to fulfil the indication for giving strength in the weak stage of fever, for which he considers wine as the only proper medicine, as it increases the force of the pulse without frequency, and has a narcotic power, which cannot be said of mercury. Even spices, which were formerly much depended on in this stage, excepting in cases of extreme flatulence, as well as mercury, have been

considered as noxious, since they render the pulse smaller, quicker and weaker.*

But the general testimony of practitioners, who have been much in the use of this medicine, is in favour of its exhibition in all stages of febrile disease, even in the very commencement of the fever, or before it is formed; and it need not be remarked, that when the blood is once filled with it, its effects will probably continue through all the stages, because it is not often the case that it can suddenly be expelled from the habit.

Some practitioners have thought it advisable to premise evacuations. One of the most experienced of the writers on malignant fevers, Dr. Chisholm, says that in morbid states there are certain conditions necessary to the success of mercury; and these are, first, reduction of plethora at the commencement, and secondly, increasing the vis vitæ in the advance; and also, that in some cases the latent mercury has been brought into action by bleeding, which diminishes the tone of the system: so that a certain determinate degree of tone seems necessary to the mercurial effect. Bleeding, however, has been supposed to diminish the attractive power of the fibre for oxygen. Dr. Rush promoted the first of those conditions by blood letting and purging; and in this he has been followed by many other physicians of high reputation; though few of them have pursued it to the same extent. The second has been

* Spices act immediately on the stomach, which is not the case with mercurials in general.

effected by opium, wine, and the Peruvian bark which has been supposed to aid the efficacy of mercury by giving tone to the system and enabling it to absorb a larger quantity of oxygen from the preparation.

The operation of oxygen in other forms, and particularly in the nitric acid, may be explained on the principle of its giving activity to the mercury which had hitherto lain dormant in the system; thus, in certain diseases, effecting a cure sooner than either of them would have done separately; and enabling the constitution to support it better. We well know that nitric acid and oxygenated muriate of potass, administered alone, are by no means to be depended upon in malignant fevers; but in all cases they may accelerate the action of mercury.

It may be proper however to observe here, that a case is related by Dr. Kentish wherein mercury salivated so soon as to do no good;* and if I am not mistaken, I have frequently seen such instances; and the inference is, that a simple interruption of the train of morbid action is not, in violent cases, sufficient to effect the cure, without some continuance of its operation.

As the great object in violent cases is to introduce the medicine into the system, as fast as may be convenient, it becomes necessary to make use of such preparations and such modes of application as may best answer this intention; and the doses must be according to the torpor of the system. The medi-

* Beddoes and Watt on factitious airs. Vol. 2, part 4, p. 4.

cine in most common use is calomel; and this is upon the whole the best calculated for an irritable stomach; but as it is sometimes too slow in its operation, a more active form has been sought.

Dr. Davidson used mercurius calcinatus, (oxydum hydrargyri rubrum.) He began with half a grain joined with two thirds of a grain of opium, doubled the dose the second hour, trebled it the third.—The patient continued taking it in this way from six in the morning to eight in the evening of the same day, when the breath had a strong mercurial smell. On the following morning, after having taken twenty grains, the mouth being very sore, every symptom of disease was gone. In the second case the fever subsided without salivation. In the third, the effect was similar. A grain of this preparation is a sufficient dose.

The murias hydrargyri has also been used by him with the same intention; and a grain and a half is said to be sufficient to produce salivation. Further experience, however, seems necessary for ascertaining whether the uncertainty of these preparations, and the danger attending their administration, may not be more than a balance for the advantages derived from their superior activity. It has been observed, that this last mentioned preparation discovers its influence principally, by producing hemorrhage from the gums.

The torpor of the absorbent system, in extreme cases of fever, is generally so great that it is with considerable difficulty that much effect has been

produced by mercurial frictions; but in aid of the other means they should certainly be put in practice. They have been used with success on the soles of the feet; and the patient himself, when able, should always be the operator in this process. As the stomach is sometimes extremely irritable, this may be the principal resource remaining; and as blisters in this circumstance will often be indispensable, the dressings should be made with the strongest mercurial ointment. The cuticle being raised, the mouths of the lymphatics are denuded, and some absorption will take place, perhaps more than, when that is entire, from long continued frictions.

But there is one other mode of evading the evil arising from an irretentive state of the stomach, and that is by mercurial injections with opium.

Clysters of strong mercurial ointment, rendered miscible with water by means of a mucilage, never failed, in Dr. Chisholm's practice, to produce a salivation, and were remarkably successful in their ultimate effect; but this must depend in some measure upon the stage of the disease, for when the vital powers are much reduced, no absorption taking place, the medicine is inert. A more convenient form of the injection was afterwards used, consisting of from two to four grains of calomel in a strong solution of sago with two teaspoonfuls of laudanum, or the watery solution of opium.

The retentive power of the stomach may be assisted by ether, assiduously persevered in, and by clysters of assa fætida dissolved in water.

It has been observed, that many medicines produce a more sensible effect, when several of them are combined, than either of them do alone; and on this principle the peruvian bark has been used with mercury to great advantage, especially in the advanced stages of yellow fever; and in the same manner the nitrous acid may act as an auxiliary to this medicine, both rendering the system, by their tonic power, more susceptible of mercurial stimulus.

Jalap not only assists the cathartic effects of calomel, but has appeared also in some instances to have increased its activity in promoting salivation.

The management of a mercurial course, when it is used *short of salivation*, is by no means difficult; but in case of this event, which will often occur, whether we intend it or not, this new disease must sometimes become formidable; the means of curing it, therefore, should first be well understood, before we undertake to substitute it for another. The primary indication must obviously be to check the too profuse ptyalism, or to remove it altogether, when it has answered the purpose for which it was brought on.

That sulphur has the power of subduing the activity of the mercurial oxides, has generally been conceded; and it is the medicine most commonly in use for rendering the mercury inert in the system.

Hydro-sulphuret of potass is supposed strongly to counteract the oxygenating power of mercury, by taking from the metal its oxygen; and Dr. Garnet

asserts, that this effect may extend so far as to deprive even the blood of its vivifying principle.

Cathartic medicines have been much relied on for the cure of the febris mercurialis; but an experiment of Dr. Fordyce seems pretty clearly to have demonstrated the futility of the practice.

He chose forty patients as nearly similar to each other as possible, who were under salivation. To twenty of these he exhibited purgatives, and to the other twenty no medicine whatever; the salivation ceased much sooner in those patients who took nothing, than in those who were purged.

But the most extraordinary method of avoiding, or curing this affection, when it happens, is that which Dr. M'Lean has proposed, by calomel. Considering salivation as a disease of indirect debility, he asserts, that it takes place only from the sudden intermission of the mercurial course. The immense quantities of this medicine, which were used in Calcutta under his and Dr. Yeates's treatment of East India diseases, must often have excited salivation; yet he declares, that it never happened, if the doses were gradually diminished after the disease had been subdued; but, that whenever by accident it was entirely omitted, after a full course, salivation ensued, and was removed again by a recurrence to mercury. Though he gave large doses at short intervals, under the persuasion that the effect of each dose continued only one or two hours, yet it seems he avoided salivation, supposing it to be utterly unnecessary to the success of its administration.

The experience of other practitioners does not appear to support this extravagant doctrine. The duration of mercurial action, which is probably much longer than that which he has assigned, seems to be an objection to the validity of the theory; and indeed it is difficult, on his principles, to conceive how a salivation could ever take place in the midst of an uninterrupted mercurial course; but we know it is under this cirumstance, that, in the usual practice, it generally appears.

Opium has been frequently combined with mercury, in the cure of fevers, partly with a view of accommodating it to the irritability of the stomach; but it also, under certain circumstances, may undoubtedly aid the action of that medicine. Though opium alone will sometimes produce a soreness of the mouth even to salivation; yet it has been extremely useful too, in obviating many of the inconveniences of this circumstance. Is not opium a much safer and more certain method of curing salivation, than mercury?

It has been urged by some, that opium is injurious in inflammatory diseases, but De Haen, Storck, Huxham, Butler, and others, have sanctioned the use of it. Dr. Crawford employed it to check salivation; though he observed, it often occasioned violent pains in the bowels; which were instantly removed by lime juice.

Plentiful dilution with a mucilage of gum arabic, and other demulcents, has a similar power in restraining ptyalism. The tepid bath is also useful

in the same intention. Exposure to cool air sensibly restrains the effects of mercury.

The action of a mercurial course, in inducing a particular diathesis, may often claim the particular attention of the physician. The loosening of teeth, hemorrhage from the gums and from the nose, are frequently very troublesome, and sometimes very alarming consequences of this practice.

On the hypothesis of a tendency in the blood to dissolution, which however is not readily admitted, such medicines as give tone to the system, and if there are any, such as condense the red globules, are obviously indicated. The effects produced in the constitution, especially on the solid fibre, certainly require a strengthening and restorative course of medicine and diet; and the peruvian bark, wine, and cold bath are peculiarly fitted to this purpose.

But, as all these methods for controlling salivation or obviating its effects, may sometimes prove slow, or ineffectual, the safest way in general is, by a careful administration of the medicine, altogether to avoid it. The mere soreness of the mouth is probably nothing different from ptyalism, but in degree; it may therefore be expected, that, in general, that degree may be sufficient to produce the new order of association.

The stimulant effect of the doses, though not so lasting as has been imagined, is not of so short a continuance as one or two hours; but, even supposing that it were so, does it follow, that they

ought to be repeated so frequently as has been advised, at the end of these periods?

Many medicines, when repeated at short intervals, require larger doses to produce, or keep up an excitement; and some of them altogether lose their power of acting by frequent repetition, and hence the advantage of changes of medicine in diseases of every description; but there is some reason to believe that the exhibition of mercury in such prodigiously large doses, and at such short intervals, as have often been used, may be unnecessary in diseases of any character whatever.

It has indeed been urged with much plausibility, that this practice is indispensable in cases of yellow fever, because there is invariably an organic lesion and engorgement, as it has been called, existing in, if not constituting, the disease, and the violence of the symptoms demands remedies proportionably energetic. Many cases appear, notwithstanding, to resist the largest quantities; and it is possible, that in those instances, where it is capable of affecting the mouth at all, smaller doses might have answered the purpose; and the danger of introducing a train of consequences not absolutely necessary, nor altogether so manageable, as could be wished, be entirely avoided.

In some instances of inflammatory fever in this country, even under the pressure of very dangerous symptoms, small doses, at longer intervals, have speedily excited salivation. This is the more remarkable, when it is considered, that heat promotes

the action of mercury, whence we should infer, that it would require greater medicinal powers to produce this effect with us, than in tropical climates.

Indeed, with respect to stimulant medicines, it is well known, that the immediate effects produced by them are not always in proportion to the quantity administered. Ipecacuanha is a striking instance of the truth of this remark.

Dr. Wright, of Barbadoes, says, he never found it necessary to use such enormous quantities of mercury as had been administered by others in yellow fever. Ten grain doses were given two or three times a day, as evacuants, after which, two grains every three hours, till symptoms of resolution appeared; and it generally produced a moisture on the skin, and a removal of the fever. But he confesses also, that there was no instance in which it had been given so as to affect the mouth, which was not successful.

PART II.

SECT. I. GENERAL DESCRIPTION OF EPIDEMIC FEVERS.

THE epidemic, denominated the yellow fever, has been the occasion of bringing mercury into vogue, as a febrifuge, and of elevating it to the high rank it sustains in the materia medica of the present day.

WHETHER this disease be of an inflammatory, or typhoid character, is a question which has been agitated with considerable warmth by their respective advocates.

BY adverting to a few of the most prominent characters of inflammatory and of putrid diseases, and comparing them with the appearance of any of the fevers in which mercury has been largely exhibited, we may be enabled to form some rational conjectures on this head.

IT may hence appear, whether, as Dr. Wright has asserted, jail-fever, ship-fever, yellow fever, &c. are probably different degrees of the same disorder.*

FIRST. In inflammatory diseases the pulse is usually full, hard, and strong; in typhus, small, frequent, and weak. It should be remarked, however, that the pulse is often in these fevers extremely deceptive.

* Vide Annals of Medicine for 1797, p. 346. Treatise on Diseases of the West Indies.

Secondly. The muscular strength is more suddenly reduced in typhus, than in inflammatory diseases.

Thirdly. Inflammatory diseases are most prevalent in hot climates, where they have also earlier and more distinct crises.

Fourthly. The appearances of local affection are, perhaps, almost peculiar to inflammatory diseases; for in typhus there is seldom a complaint in any particular organ.

Fifthly. Petechial eruptions are less frequent in inflammatory, than in typhoid diseases.

Sixthly. Typhus, in variable climates, is more prevalent in cold, than in hot weather.

Attempts have been made by some, towards drawing a line between these two forms of disease, by attributing them to different remote causes, marsh miasmata being considered as producing, exclusively, diseases of the putrid diathesis; but is there not some reason for suspecting that this is not an invariable law? In many instances it has been highly probable, from facts that inflammatory fevers also have arisen from vegetable and animal substances in a state of putrefaction, impregnating the atmosphere with gases of a noxious quality; some of which may, from defect, and others from excess of stimulus, produce disease, or at least predisposition to it; and there can be no doubt from the variety of substances constituting these exhalations, that their properties must be variant accordingly.

In the history of epidemics it will probably appear, that some of the diseases, which have obviously arisen from these causes, have been typhoid, and some inflammatory.

It has been alleged, that inflammatory fevers are most prevalent in hot climates, where vegetable matters most luxuriantly abound, and where, being exposed to the action of solar heat, they contaminate the air by the decomposition of their substances; whilst, on the other hand, putrid fevers are most prevalent in colder climates, or at colder seasons, wherein the various matters of animal elaboration are so altered, by the heat of the body alone, as to extricate gases of very different properties. But remote causes are often obscure and uncertain. The characters, therefore, of inflammatory fever, and of typhus fever, ought not to be deduced from their supposed remote causes.

Contagion too has been considered as a test of discrimination between these fevers.* This has been assumed as a property peculiar to one class of fevers, and as originating from human elaboration, or vascular action. Those, which are the effect of chemical operation on marsh miasmata, were supposed to be incapable of propagation by any changes, to which they were subjected in the human body; and therefore always to cease in the individuals on

* C. Smith, p. 43, on jail distemper, makes two divisions of contagious diseases; specific, which can infect but once, and general or putrid, in which there is no limitation.

whom their generating causes had acted; and these should be denominated infectious diseases.

But, that the autumnal putrid fevers, as they have been generally denominated, are sometimes contagious,* I think any man, who has been conversant with those diseases in Boston, (however contrary it may *appear*, to the uniformity of natural causes) must suspect; and Dr. Cullen has assigned contagion to typhus as one of the distinguishing characters of that genus of fevers.

The opinion has been entertained by some, that even intermittents are contagious.† It will scarcely be doubted, that they are generally of putrescent origin. It is nevertheless, true, that the activity of contagion in the atmosphere is not increased by heat;‡ and, indeed, the state of the atmosphere in hot climates is probably unfavourable to its extension; and among the numerous histories of their epidemics, which have been published, there are very few, in which incontestible evidence of contagion has been exhibited.

* Chisholm says the remittent may be contagious, and the pestilential may be remittent, owing to the mixed action of the substances.

† Dr. Clark is decidedly of opinion, that marsh miasmata may produce contagious fever; and Dr. Cleghorn thought that even intermittents were contagious.

‡ By solar heat larger quantities of noxious gases are extricated from putrefying substances in hot seasons than in cold; but it is doubted whether they are rendered more active by heat *when in the atmosphere.*

As there is a great difference of opinion on the subject, it is possible, that the advocates for both hypotheses may be right.

Dr. Wright's experience in these fevers has induced him to believe, that diseases arising from foul exhalations will, under certain circumstances, be contagious, especially those of the typhoid kind.* The principal objection against it is, that as these sources are spread throughout the globe, and exist every where, if the diseases arising from them were capable of multiplying themselves, the world would soon become depopulated. But as we do know that the progress of contagion is frequently suppressed, this argument seems to be of little weight.

A great variety of circumstances may unite to favour the activity of contagious disease, some one of which, being detached from the combination, the desolating calamity may be arrested in its progress. Happily too for the existence of our race, the all-wise Creator has rendered the limits of contagion much narrower than has generally been conceived.

Even the plague, the contagion of which is now doubted, is capable of infecting, at farthest, but at the distance of a few yards. Dr. Russell, in the plague of Aleppo, in 1762, took his station at a window fifteen feet above the pavement (where patients attended for prescription) with impunity. A ball of cotton filled with as much small-pox

* Vide Dr. Rush on yellow fever, p. 160, who agrees with the former. The writers on tropical fever in general do not admit of contagion in intermittents.

matter as it could absorb, has been placed on an oval table, by Dr. O'Ryan, the shortest diameter of which was half a yard, and around it were seated six children, who never had the disease, and neither of them received it on several trials.*

In fact the matter of contagion, in common states of the atmosphere, seems sometimes to be almost confined to the body in which it exists, and probably never has been communicated to a greater distance than eight or ten feet. And it is a circumstance, perhaps, worthy of remark, that the particular condition of the atmosphere, which is most favourable to contagion, locally considered, seems to be that of humidity. But, as in most climates there is a considerable portion of the seasons, in which a contrary condition prevails, no great length of time can elapse without the intervention of causes which will at least be less favourable to its continuance and multiplication.

The above mentioned effect of humidity in the air is apparent from the stenches arising from foul water, or from other sources of impurity, which are always most offensive in foggy or damp weather; and it has been supposed to operate by weakening the power of oxygen to combine with, and neutralize the noxious effluvia.†

As to the chemical changes, to which the body is subjected under inflammatory fever and typhus, it

* Dr. Haygarth supposes that the variolous matter is not communicable, in the open air, to a distance more than half a yard. Vide Beddoes's Hygeia, Essay xi. p. 40 and 41. vol. 3.

† Vide Fordyce on Fevers, p. 125.

has been conjectured, that they are principally dependent on the proportions of oxygen,* with which the blood is united. A combination of oxygen and azote was thought by Dr. Chisholm to constitute what he called malignant pestilential fever, which was contagious; and a combination of hydrogen and some other unknown principle, what he calls the yellow remittent fever; both of which he supposes to be sometimes epidemic in hot climates, and both curable by mercury.

That both of these have been by different authors described under the denomination of yellow fever, will readily be discovered by any one, who will give himself the trouble to peruse the writers on that subject; and they have been sometimes considered as the same disease, differing only in the forms and degree of their action.

There is one circumstance of some practical importance in tropical climates. Those fevers, to which strangers are particularly incident on their first en-

* Dr. Mitchell supposes oxygen and azote to have a stronger attraction for caloric than for each other in their gaseous form; therefore they are only mechanically mixed in atmospheric air. The abstraction of the matter of heat gives an opportunity for a chemical union of the azote, septon, or nitrogen, with oxygen. This union is made up of different proportions of oxygen, and constitutes what are called the gaseous oxides of azote. That in which the smallest proportion of oxygen is contained, is supposed to constitute the matter of infection, and to be furnished by putrid animal and vegetable substances mixed together, and to contain 37 parts of oxygen and 63 of nitrogen.

trance into hot climates, or what are called seasoning fevers, are always inflammatory,* and, generally, the more so, as the subjects are natives or inhabitants of colder regions; for it is a common law of the animal economy, that after being subjected to the influence of cold, heat will be productive of increased action.

After cold, the sudden application of heat must produce the violent action, which constitutes inflammation.

The effect, in this case, is of the same nature with what is usually observed in *taking cold.* The symptoms are ascribed to the cold, and are the effects of an inflammation of the schneiderian membrane, which lines the nostrils, but it is the heat, which is the immediate cause. We do not feel that we have taken cold, till we are exposed to the action of heat, as when we come into a warm room, or are in a warm bed, after exposure to a cold atmosphere; and similar consequences are known to follow the application of heat to frozen limbs, viz. inflammation and mortification of the parts.

The inflammatory seasoning fevers are not contagious; and as this quality is more commonly attached to fevers of cold climates and seasons, than hot,† this circumstance may furnish us with one of the diagnostics of contagious diseases, which are generally aggravated by winter, and spread with at least as great rapidity, as in warmer seasons,

* Hector M'Lean, p. 194. Moseley on Tropical Fevers, p. 416.

† Jackson on fevers, p. 218.

whereas endemics invariably decline on the approach of winter.

From the foregoing remarks, it may appear reasonable to suspect, that contagion is not peculiar to fevers,* either of the inflammatory or of the typhoid form, but is in some measure accidental; or, at least, dependent on a combination of causes, which have not been discovered; and that both inflammatory fevers and putrid have been contagious.

The nature of contagion, and the reason why, in some forms of disease, it is incapable of acting more than once upon the same constitution, are both equally beyond the reach of human investigation. No chemical examination has, I believe, ever yet satisfactorily demonstrated the matter of it in the habit.

It is perhaps an observation of some importance, that what are called critical days are more observable in endemic, than in contagious fevers.† That the human body is subject to certain changes, dependent either on the diurnal revolution of the earth, or the established habits of life, is certain from the phenomena of health, the regular exacerbations of continued

* Dr. E. Miller's proposed new Nomenclature of Fevers, founded on remote causes, supposes the matter of contagion to be invariably the production of animal, and miasmata of chemical action, on matters emanating from dead animal and vegetable substances. Vide Med. Repository, vol. 7. p. 370.

† Vide Dr. Jackson on fevers, p. 244. and Annals of Medicine, for 1801, for an account of the termination of fevers on critical and uncritical days, p. 326.

fever at a particular hour of the day, and the stated return of paroxysms on the periodical days of an intermittent.

In those fevers, where contagion is most conspicuous, there are doubtless some such changes; but in general, the powers of action in the body are so far suppressed by the influence of the morbific matter, that they are not capable of exhibiting those marks of energy, which in fevers of other descriptions denote the struggle which the healthy associations are making to surmount the disease.

In endemic fevers those changes are evident. There is certainly a propensity in those, and, I believe, most other fevers, to a remission of symptoms every other day; and of course crises, when they take place, will be likely to appear on odd days. As mercurial medicines must be supposed to counteract the existing diseased action, and by that mean to enable the system to recover its interrupted associations, it is to be expected that favourable changes will manifest themselves on odd days; and the fever, which would commonly run on to the fifth, or seventh, may often be subdued on the third or fifth day.

SECT. II. PRACTICE IN EPIDEMICS WITH MERCURY.

As the principal object in the following histories is to ascertain, in what diseases, and with what success mercury has been employed, such circumstances only will be noticed as may, either directly or remotely point to these objects.

The yellow fever stands at the head of these diseases, both with respect to the violence of its nature, and to the degree in which mercurial medicines have been administered. If the character of this disease could be ascertained, some inferences might be drawn respecting the treatment of other disorders partaking of the same general properties and causes.

The circumstances, then, which at any particular period of its prevalence, must chiefly bear upon these questions, and which may tend to resolve them, are, first, the nature of the disease, so far as it can be ascertained, whether inflammatory or typhoid; second, the form of mercurial preparation given; third, the quantity of the medicine; fourth, the effect. These are to be collected in a desultory manner only, from the different writers upon the fever.

It has already been observed, that though Dr. Chisholm was in some measure the father of the mercurial practice, he was not the first person who had used it in that disease. As early as the year 1721, a fever had appeared at Barbadoes, and the history of it, to 1738, had been given by Dr. Warren, who assigned to it an Asiatic origin. This disease, as he described it, was contagious, properly denominated pestilential, and imported; though Drs. Hillary and Towne* were of a different opinion.

Dr. Warren appears to be the first, who mentions mercury as having been used in inflammatory

* Towne wrote in 1726, and called it febris ardens biliosa; and Hillary in 1759, and called it putrid bilious fever.

fevers of the West Indies, calling it an odd and unwarrantable practice, and gives as his reason the injury the tender substance of the brain must sustain from this medicine. The practice, which he adopted, was that of sweating copiously by alexipharmics. He had a strong prejudice against the use of blisters.

Dr. Home has also given an account of this fever in Barbadoes, in 1735. The symptoms were chills, faintness, pains in the head and loins, redness of the eyes, vomiting, soreness and oppression of the precordia, stricture of the chest, and difficulty of breathing, generally, with a strong full pulse. After about forty-eight hours, the pulse became moderate, the blood florid, crassamentum of a loose texture, skin dry, or moist only at the pit of the stomach, neck, face and eyes changed to a yellow colour.

About the end of the third, or beginning of the fourth day, the blood became so dissolved, as to ooze out of the mouth, nose, ears and eyes, and the skin, when the cuticle had been removed by blisters. At this time the pulse sunk, fluttered, and sometimes intermitted; the patient became comatose, delirious, and tremulous, and the black vomit commenced with a sediment of dark filiments, like coffee-grounds; and sometimes grumous blood was discharged by the anus, and mixed with the urine; a death-like coldness of the extremities ensued, frequently with livid spots, after which the patient died.

The ardent stage, the yellow stage, and the sinking stage, seem to constitute the course of this fever, which was usually terminated about the seventh

day; but, when violent, sometimes in twenty-four hours.

On dissection of a number of bodies, the liver was found indurated, discoloured, and enlarged; the gall bladder distended with bile, but its duct not obstructed; the stomach and duodenum inflamed, and in some mortified.

The method practised was to bleed first, but not profusely, as he found this unsuccessful in some of the first cases. He was deterred from vomiting by the appearance of inflammation in the dissected stomachs of those who had died. He then used and repeated gentle cathartics, such as manna and cream of tartar, and directed blisters and the bark in the advanced stages.

This has marks of what is called the seasoning fever, as is evident from its attacking chiefly those, who had lately arrived in the islands. It appears not to have been contagious.

The same fever also prevailed in Jamaica in 1741 and 1742, and the treatment was, generally, little varied from the above.

A return of the sick admitted into the hospital in Jamaica, in 1741 and 1742, with the proportion of deaths under this mode of treatment, may serve for a comparison with the success which attended the mercurial mode of treatment afterwards adopted.

In 1741 were admitted into the hospital sick, 6363, of whom 1154 died.

In 1742, 4437, of whom 499 died.

Making 10800, of whom 7000 were supposed to be sick of this fever. Of this number about 1500* died, something less than one in four; but those were seamen, and the mortality was always observed to be greater among the troops, from their exposure to the sun and land exhalations.

Dr. Mosely denominates this fever the endemial causus, and his description of symptoms, in 1780, differs but little from those above recited.† The strong pulse, however, was not always noticed; it was sometimes quick, low, and vacillating, with burning in the eyes, white tongue, and all the interior surfaces oozing out blood. His stages are, as above. On dissection, the duodenum was found to be more frequently inflamed than the liver, and often grangrenous; but the latter organ was never so diseased as to be followed by suppuration.

His method of cure consisted in copious bleeding, moderate purging, and sudorifics; and as fever never existed after the first stage, he used the bark, when the stomach would bear it; recommended blisters; and, on account of the inflammation, condemned opium.

Dr. Wright, in his practical observations on the treatment of acute diseases in the West Indies, assures us, that a considerable time before 1764, when he began to use calomel himself, Dr. Smith, of Savannah le Mar, had used it in the cure of acute diseases.

* The rest of those who died had other diseases.

† Dr. Moseley wrote in 1792.

In the year 1788, a destructive yellow fever occurred in Grenada.

Dr. Lindsay, and Mr. Denholme, administered calomel with camphor and Dover's powder, in large and repeated doses, after proper evacuations, and cured eight out of ten by opening, as they observe, the biliary ducts, procuring a vast number of bilious stools, and removing the suffusion of the skin.

Dr. Chisholm has described two different fevers, which appeared in the West Indies; one in 1793, 4, 5, 6; the other, subsequent to these periods, under the names of the malignant pestilential fever, and the yellow remitting fever. The former an epidemic, originating from contagion; the latter endemic and sporadic, and arising from marsh miasmata.*

In both these fevers mercury was his sovereign remedy;† and this practice, which began to be much spoken of about the year 1789 or 90, he was doubtless one of the first to embrace.‡ An epidemic, which

* Dr. C. Smith observes, that these fevers must have possessed some qualities in common with each other, from a circumstance mentioned by John Pringle, by which it appears that he used the same medicines in both. Vide C. Smith on yellow fever, page 28.

† Speaking of a publication in which Drs. Clark and Rush were mentioned as having proposed the use of mercury in these fevers, he observes, that he had recommended it before either of them. Vol. 1. p. 189. Chisholm on the malignant and pestilential fever.

‡ When the mercurial practice first began to excite general attention in the West Indies in 1789 and 90, particularly in Jamaica, it was generally ridiculed.

prevailed at Grenada, he affirms to have been the malignant pestilential fever, the same with that at Philadelphia, 1793, and differing only in degree from the plague.

He accounts for the failure of Dr. Stevens' plan of tonic treatment, which he at first recommended in Philadelphia, from his having supposed, that it was the usual bilious remitting fever of the West Indies, whence, though mercurial medicines were useful in both description of fevers, the bark which he had used was serviceable only in the latter;* but there is sufficient reason to believe that with respect to contagion, at least in the fever at Philadelphia, Dr. Chapman is mistaken.

The pestilential fever almost disappeared, from September 1793, to February 1794, after which it raged with violence, till near the end of 1796, when it ceased altogether; and it is remarkable, that its termination was at nearly the highest degree of heat, the thermometer standing between 80° and 92°; a strong evidence of the power of heat in destroying the matter of contagion in hot climates.

Dr. Chisholm was induced, by the success with which he had given mercury in an anomalous hepatic fever in 1786, to adopt the mercurial treatment in what he calls the malignant pestilential fever.

* Dr. William, Wright in his report on diseases of the West Indies, says, the fever which prevailed there in 1792 and 5, was exceedingly contagious, and he supposed it to be a form of jail fever. Vide medical commentaries for 1797. p. 345.

The symptoms of this disease were as follow: the attack was sudden; it was attended with vertigo and falling down in a state of insensibility with extreme coldness, which subsiding, heat instantly took place, together with a quick, small, but sometimes full and hard pulse, pain in the forehead and in the right side, inflamed eyes, heat at the pit of the stomach and vomiting, intolerable pain in the small of the back and calves of the legs.

After eighteen, twenty-four, or thirty-six hours, a general coldness took place with coma and delirium resembling intoxication. After about sixty or ninety hours, the patient became rational, and supposed himself free from danger. But a sudden fit soon came on, with foaming at the mouth, rolling of the eyes, and a violent agitation of the limbs. In this fit he generally expired. But this event was sometimes preceded by an efflorescence of the skin, and dilatation of the pupil of the eye. In fine, he describes it as agreeing in most respects with the plague described by Dr. Russell at Aleppo.

The dissections generally demonstrated the liver to be considerably diseased, and the stomach, or duodenum highly inflamed; and the lungs, and the blood-vessels of those organs extremely distended with dark coloured blood. In some instances the brain exhibited marks of inflammation.

In the description of these morbid appearances, a reference is made to dissections in Boston, 1798, in which, the doctor says, the appearances very exactly

corresponded with those, which had been made in Grenada, excepting the enlargement of the liver.*

From 1796 to 1799, a fever of a different character prevailed, which has been described by Dr. Chisholm, as wholly originating from marsh miasmata and not contagious, under the denomination of the remittant fever, indigenous to the country.

The symptoms of this fever were general febrile complaints for a day or two, often under the type of an intermittent; pain in the head, but not confined to any particular part of it, and in the lumbar region, as well as the lower extremities; and oppression at the scrobiculus cordis and sense of fulness and uneasiness in the right hypochondrium. The countenance was highly flushed, skin very hot, pulse full and rebounding, beating from one hundred to one hundred and thirty in a minute; the exacerbations and remissions very distinct. The whole surface acquired a deep yellow colour, and numerous petechial eruptions were discovered. The eyes from being extremely red were covered with a gelatinous exudation, and the iris was much dilated without loss of sensibility.—Vomiting did not come on till the third day. It was at first bilious, and at length attended with a discharge of a dark brownish coloured fluid like coffee grounds; and this was accompanied with intense pain in the stomach, and a diminution of urine, which, as well as the matter of perspiration, was deeply tinged with a yellow colour. Hiccough ensued with a tranquillity

* This fever at Boston was inflammatory and not contagious.

resembling sleep, and the patient expired. The subjects of this fever at first were chiefly strangers.

The difference between these two descriptions of fevers is exhibited in the following particulars. But whether these constitute sufficient diagnostic marks for discriminating them as really different diseases, will be submitted to the judgment of the reader.

First. In the *pestilential* fever, at a certain period, a total absence of external heat takes place, with a most pungent internal heat, and a singular change of the pulse.

Second. The delirium in *this* is more in the form of fatuity, whereas in the yellow remittent, it is of the furious kind.

Third. The pain of the legs being fixed to the gastrocnemii muscles, is peculiar to *this*, the pestilential fever; the pulse is more variable, and never intermittent.

Fourth. Hemorrhages are frequent only in *this* genus of fever.

Fifth. The change of voice, which almost invariably takes place at the commencement of the second stage, is also peculiar to *this* fever.

Sixth. The oppression and debility are extremely great.

Seventh. The colour of the skin is not generally yellow, but dingy, like what takes place from the extravasation of blood in contusions. The biliary ducts, as is discovered by dissection, being pervious in *this*, but obstructed in the yellow remittent; thus giving the skin a high degree of tinge.

But the principal difference was supposed to arise from their causes; that of the contagious fever being the gaseous oxide of azote; while that of the remittent is hydro-carbonate, or hydrogen in combination with carbon. But we have already objected to this mode of discrimination founded in remote causes.

The obvious indications of cure in pestilential fever were to discharge from the primæ viæ acrid matter, and to counteract the effect of contagion.* The first was fulfilled by cathartics; and the second by mercury.

Dr. Chisholm, having been led, as we have observed, to this practice by his discovery in dissections, that the liver was principally diseased; and by experience, that mercury was the sovereign medicine in hepatic complaints, confluent smallpox, and hydrocephalus internus, where the brain was compressed, after moderate evacuations, gave a pill consisting of five grains of calomel, two of an antimonial powder, and one of opium, eight times in twenty-four hours. In one case four hundred grains were given, before the salivary glands were affected.

In 1794, from his former experience, he began the use of calomel without previous evacuations, and pursued it, till salivation was induced; and did not lose a patient, in whom this practice was pushed to the full extent. Ten grains of calomel, with an equal

* Dr. Crawford, in 1770, salivated in a fever, which he calls putrid, on board the Earl of Essex. This is suspected to have been the same fever with that of the West Indies. Vide Philosophy of Medicine, vol. 5. p. 44.

or double quantity of jalap were, however, given usually for the first dose, which likewise evacuated the bowels in one or two hours, after which he gave ten grains every three hours, with, or without opium, according to the effect on the bowels, till salivation was produced, which was generally in twenty-four hours.

The action of the mercury was generally perceived after the third dose; the patient becoming calmer and less anxious; the skin softer, and of an agreeable heat; the stomach recovered its retentive faculty, and the patient was free from the disease. Salivation was supposed to be necessary, but immense quantities were required to effect it.

The following are specimens of the symptoms and his methods of cure in the malignant pestilential fever of 1793, as exhibited in the practice of Dr. Campbell, who adopted his mode, and from these histories the reader must judge of the nature of the disease and its distinctive character.

1. March 18, 1793. J—— was seized suddenly with violent headach, dimness of sight, a cold shivering, which was succeeded by convulsions. On recovering from these, he became extremely hot, with severe pain in the legs and thighs. These symptoms, notwithstanding a profuse perspiration, continued without any abatement, till the end of thirty-six hours. He was then very low, his pulse pretty full, but stopped by the slightest compression; his eyes and skin yellow, the latter without heat; his stomach incapable of retaining any thing. He had violent pain in the right side, a few spots of a dull

purple colour on his breast and shoulders; his urine was small in quantity, of a pale yellow colour.

On the 21st, he was ordered a pill of four grains of calomel, and half a grain of opium every four hours. 22d, symptoms the same; he vomited up some of the pills, but was ordered to continue them. 23d, kept down the pills. 24th, he was spitting plentifully. Every symptom disappeared.

2. Mr. Taylor was seized with the usual symptoms, on the 9th, took the calomel and jalap as a purge; and on the 10th, began the pills as in the first case, with the addition of the antimonial powder. On the 12th, a ptyalism took place with relief from every complaint, excepting weakness.

3. T. S. took, first, a purge of jalap and calomel on the 11th of June; on the 13th, six grains of calomel every four hours; on the 14th, eighteen grains of calomel with two of opium, twice in the day; 15th, the same quantity was repeated, mouth a little sore. The pulse then had become remarkably small and quick, but soft. 16th, pulse full and more natural, yellowness diminished. 17th, mouth very sore. 18th, salivated. Recovered.

4. June 14th, R. M. began with the calomel, eight grains at a dose every eight hours; increased the quantity to forty and fifty grains a day, till at length, on the 22d, he took fifty four, at which time he had taken 254 grains without affecting the mouth, and without its purging him. From this day the calomel was discontinued; but on the 24th, his

mouth became sore. On the 25th, he was salivated, after which he began to recover.

5. D. R. began with the calomel on the 25th of July, from which time to the 29th, he took 130 grains without affecting the mouth, and died the first of August.

6. J. B. was seized on the 25th of July. On the 26th, he took five grains of calomel, with one grain and a half of opium. The calomel was repeated every three hours. 27th, quantity doubled. 28th, continual vomiting; coma and delirium ensued. Died in seventy-two hours from the attack. Blisters, bark, James's powders, and other auxiliary means were occasionally used in these cases; but, as no remarkable effects from those means were noted, they are not related in the above summary of the treatment. The pulse in these cases, when a ptyalism took place, was generally slower and softer.

The following are subjoined as cases of the yellow remittent.*

1. W. S. aged 21, April 13, 1798, was seized with total insensibility; pulse indistinct, skin very warm; on being bled the pulse instantly rose. 14th, pulse softer, still indistinct; insensibility continued.

He took in the course of the day, eighty grains of calomel. In the evening was more sensible.

* As it is extremely difficult, if not impossible to determine, from the descriptions that have been published, the precise nature of the various epidemic fevers in the West Indies; and, as the mercurial practice was adopted in all of them, we shall not attempt very precisely to draw the line of distinction between them in the following statements.

15th, outrageously delirious; fifteen grains of calomel, with ten of camphor, and three of James's powder, were given every four hours; pulse 130, tongue whitish. 16th, Had intervals of sensibility; belly open, skin cool; calomel continued in doses of ten grains. In the evening pulse ninety-two, skin cool, perfectly collected in his mind; pains across the forehead; tongue covered with a thick white crust; eyes much inflamed. 17th, Highly delirious, pulse 108, skin soft, and moist, tongue dry and brown in the middle, moist towards the edge; calomel continued. 18th, Pulse 108, tongue moist; has had much sleep, is perfectly sensible, crust separating from the tongue. 19th, mouth sore; had rested well, has a return of appetite, and afterwards continued to recover.

2. July 1, 1798, J. B. was seized with pains in his loins, across his eyes, and generally through the head, with some degree of heat, which continued through the 2d, when he took a purge of calomel with James's powder; after which he had a remission of symptoms, but on the 3d, headach returning, he took thirty grains of calomel with two of opium in the course of the day. 4th, had an easy night; but in the morning, a violent return of pains; took pills with jalap and calomel, sixty grains of the latter, without any evident effect whatever. 5th, Vomiting alarming, with black and ropy discharge like coffee grounds; pulse 106, clammy sweats, without particular pains; pulse in the evening 116; continued the calomel. 6th, Pulse 110, vomiting

incessant; a mercurial clyster was injected every four hours, consisting of

Ung. Hydrargyri ℥j.
Submur. Hydrargyri ℥ss.
Tinct. Opii ℥ij.
Mucilaginis q. s.
Aq. tepidæ ℔ss.

And the parts on which blisters had been drawn were drest with the mercurial ointment.

After the third clyster the vomiting ceased, the mouth became sore, and a gentle spitting came on, very troublesome hiccough ensued; pulse eighty-eight. 8th, Salivation was increasing with discharge of blood from the gums. 9th, This last circumstance continued, but the patient was somewhat better; and on the 12th *much* better—recovered.

In the case of J. W. ten grains of calomel were given with one grain of opium every four hours, from December 6th to 9th, when the patient was relieved, the mercury suspended, and angustura bark prescribed. On the 10th day he relapsed and died. On dissection the membranes of the brain were found to be much inflamed; and much dark blood flowed on opening the cranium.

Water was found in the ventricles, and also in the pericardium. The stomach was diminished in size, and the interior coat abraded. The liver was of the usual size, but of a cineritious colour. The gall bladder was tinged with excessively black bile;

the spleen enlarged, and the inner surface of the intestines covered with pus.

But the quantities of mercury exhibited in these cases are small in comparison with what were given in many others; and there seems to have been no other rule of prescription as to quantity, than to give it in proportion to the existing degree of torpor in the system, and till this was subdued.

In one instance in Port Royal 2500 grains of mercury, in different ways, were used before the glands were affected.

In 1799, W. G. took sixty-four grains by the mouth. 2040 by clyster, and thirty-six hundred grains of triturated mercury were carefully rubbed into his arms and thighs in five days, amounting in the whole to 5704 grains, and the cure was astonishingly rapid.

1793, J. B. took at first twenty grains of calomel five times a day, and when the case became apparently desperate, sixty grains at a dose till the 9th or 10th day, when, after having taken 800 grains, he was salivated and recovered.

In the fever at Tortola 1100 grains have been given by Dr. Porter, who lost one in seven, without salivation; and 1000 by Dr. Sanderson. At Jamaica 1600 with advantage. But it has been observed, that the greatest success was insured, when the modes of application were varied. Instances have been adduced, wherein this disease, in a tropical climate, has resisted 2000 grains of calomel.

The success of the mercurial practice in Grenada has been supposed to justify it; and, though it is a fact, that in the Royal Artillery, on whom it was first tried, the mortality was greater, than had ever been known in a tropical climate; yet, compared with other modes of treatment, it was on the whole the most successful. About one in forty-eight, in whom the salivary glands were affected, died; and it was remarkable, that not one relapsed.

We have the testimony of Dr. Lindsay to the comparative effects of this practice, in the army under Sir Charles Gray, in which it was largely used; and of that in the army under Sir Ralph Abercrombie, where it was not adopted; and the mortality was much less in the former.

Mr. White in the same fever practised this method; and did not lose one in whom he could affect the salivary glands.

About the same time, or a little before the yellow fever commenced its ravages in Grenada, it appeared on board the Busbridge, East Indiaman.

The treatment adopted by Dr. Bryce was commenced by first evacuating the contents of the bowels with mercurial cathartics. These were frequently repeated, and from their favourable effect, compared with that of other cathartics, he was induced to suspect, that the disease was seated in the liver, pancreas, or spleen. Hence he concluded, that it was necessary to excite the action of the vessels; and from the known operation of mercury, he presumed it to be well adapted to that purpose. Mercurial frictions on the

region of the liver were observed almost invariably to produce, soon after, one or more alvine evacuations of foul matter. Vomiting was the most troublesome attendant of this disease, the irritability of the stomach, in hot climates, being always extremely great. During the intervals of vomiting, calomel, given in large doses, had the happiest effect. All the excretions were promoted, particularly those of the liver, which was the principal seat of the complaint.

It is remarkable, that about the same time, those two practitioners, Dr. Chisholm, and Dr. Bryce, should have come to the same conclusion, with respect to this disease and its remedy, by different paths; the one, from the diseased state of the liver, and the other abdominal viscera, having inferred the aptitude of mercury for the cure of the disease; the other, without the help of dissections, from the success of mercury having deduced the nature of the complaint. This circumstance may, perhaps, with justice be urged as strong evidence in favour of the treatment. Three only out of three hundred are said to have died under Dr. Bryce's practice.

In Trinidad, Dr. Clark observes, with respect to the fever which prevailed there in 1793, that, where there was time for salivating, mercury was always successful.

In Dominica, the same fever was treated with mercurials, and Dr. Fullin asserts, that the proportion of mortality under it was about as 1 to 5, and as 1 to 2 under any other mode.

Dr. Johnson makes the proportion who died under the same treatment as 1 to 7.

In Grenada, Mr. Campbell, in 1796, lost about 1 in 7.

In Antigua, Dr. Byam used mercury only on the decline of the epidemic; and the proportion of mortality was as 1 to 2.

In St. Christophers, Dr. Armstrong in the same fever used mercury, and lost but 1 in 20. At the next period of its return, he aided the action of this medicine by the cold bath, and found this increased its activity. Dr. Noble declares, that when it affected the gums, the patient was secure; and that the cold bath was not incompatible with the process.*

1769. In St. Lucia, where the yellow remittent fever prevailed more than in any of the other Islands, calomel was given in doses of eight or ten grains, every three hours; and when the mouth was affected,† which was expedited by the cold bath, an amendment was observed. The mortality under this practice by Dr. Allan, was as 1 to 7.

In St. Vincents, the principal dependence of Dr. Davidson was on salivation.

In St. Thomas', this practice was recommended by Dr. Stevens; but the success was not great.

The fever, which prevailed in St. Domingo, according to Dr. H. M'Lean, was not contagious;

* Dr. Muttlebury adopted this practice in 1796 on a batalion of Grenadiers on board the East Indiaman Valentine, and strongly testifies in favour of his success in comparison with other methods of treatment.

† Dr. Peter and Dr. Sanderson found that the operation of mercury was surprisingly assisted by a few grains of Jalap.

and differed essentially from that described by Drs. Chisholm and Rush.* He considers it as the common remittent, owing to chemical changes from miasmata promoting irregular determinations to particular organs, in consequence of diminished energy of the affected parts. An increase of the secretion of bile was a common attendant, and evident marks of inflammation in the stomach, and the black vomit, which is probably a mixture of the common juices of the stomach with blood, proceeding from the surcharged vessels.

Though Dr. M. seldom used mercury but as a purge, and was of opinion, that it was too slow in its operation; and that when it salivated, it was a dangerous circumstance in hot climates, because not easily controlled by medicine; yet, in bilious habits, which he always found difficult to correct, he used a slight mercurial course; and observed, that when the system was fairly loaded, the symptoms abated.

Dr. Todd gave 500 grs. to a woman in the same fever at Jamaica without any effect upon the mouth, and without success, even though a common cathartic operated on the bowels.

In Demarara a fever of the usual character prevailed in 1796. The mercurial practice was adopted by Messrs. Macbeth and Ord, whilst the other

* Dr. Wade lost none in the treatment of what he calls the bilious fever out of forty eight, whom he treated with mercury in Grenada in 1791, and Dr. Chisholm but one, provided the *salivary glands were affected.* And not a single relapse occurred. Vide Dr. Rush, p. 291.

practitioners used bleeding, antimonial evacuants, and peruvian bark. These latter almost universally failed, whilst the former as frequently succeeded ;—and it is worthy of remark, that small quantities of mercury produced salivation, as it is said, in consequence of the moisture of the atmosphere.

The Flora Transport, in 1796, bound to the West Indies, had 23 of her crew taken sick with this fever. Dr. Renoldson gave 10 grs. of calomel every three hours, and continued it, till their mouths were affected. In thirty six hours 18 were convalescent. Of the whole crew, about 50 of whom were sick in their passage, he lost only three, whom he could not salivate, though their breaths were affected. It was observed, that those treated with mercury never relapsed, whilst those, who had been apparently cured by other means, often did ; and were afterwards cured by mercury. One was a woman who was salivated during the catamenia without interruption to the curative process.

At Port Royal Dr. Davidson had an extraordinary case, in which calomel was given every three hours in doses of 10 grs. He began the treatment on the 22d of July; the mouth was affected in the evening, and the fever entirely gone off. The calomel was omitted. 23d, the soreness of the mouth went completely off, and the fever returned, with violent pains in the head, back, and legs. The mercury was administered again; in the evening the mouth became sore, and he again desisted from the use of it. On the morning of the 24th the mouth was well again,

and all the symptoms returned. This obliged him to have recourse a third time to calomel, which was followed up, till the mouth was very much affected; and the patient recovered in a few days.

Dr. Bishop, at the same time, lost only two patients out of forty five, whom he salivated.—Salivation was always the signal of returning health.

SECT. III. THE GENERAL USE OF MERCURY IN FEVERS COMBINED WITH HEPATIC AND OTHER VISCERAL AFFECTION.

The circumstance of phlegmasia or visceral inflammation is considered as the direct and appropriate object of the mercurial practice. All the diseases of this character are believed to submit to its empire, and particularly those, in which the liver is concerned.

In several of the more malignant and concentrated forms of fever, the method is founded on the suspicion, that hepatic affection is one of the constituents of the disease.

Hence arose the new practice with mercury in the cure of the epidemic, which, since the year 1793, has spread such terror and devastation throughout the West India Islands, and some parts of the continent of America, under the denomination of the yellow fever.

That this term is by no means strictly appropriate to any one genus of fever, is readily evinced by the inconstancy of the quality which it is used to denote.

Yellowness appears under certain circumstances of almost every febrile disease. The biliary duct may be obstructed, and the bile may be absorbed into the system independently of the principal affection.

In most intermittent fevers, as well as the yellow remittent, a tinge of bile is observed in the skin; in the latter, however, it is usually in higher degree, and more constantly an attendant.—In the malignant pestilential fever, as it is called, in which contagion is supposed by some to constitute the distinguishing external character, the yellowness is by no means a general appearance. In neither of these does this colour appear to arise from obstruction in the biliary ducts, as is supposed in the case of jaundice.

In most subjects, which have been dissected, they were completely pervious.—In a great proportion of the sick, neither the eye nor the urine was coloured with bile. The dusky appearance often observed in the latter stage of the disorder is produced by an escape of part of the red globules, and the same change is brought about by the action of the vascular parts, as takes place in contusions, in which it is extremely common to find this yellowness appearing several days after the extravasation had been made.*

There are indeed some instances of dissections, in which the ductus cysticus has been wanting. Such an instance was noticed in the dissections at Boston in the fever of 1798. The gall bladder in this

* Even in jaundice, when the skin has been excessively yellow, the biliary ducts have sometimes been found, on dissection, entirely free from obstruction.

case was entirely obliterated.—The patient had nevertheless laboured under that almost pathognomonic symptom of yellow fever, a burning sensation of the stomach. That this symptom should have predominated under this state, is by no means surprizing.

The deficiency of bile in the duodenum, and the torpor from defect of stimulus, will readily account for the suspension of the digestive process, and the spontaneous fermentation in this intestine and the stomach, with which it is connected.*

But in common cases this symptom must arise from a different cause; for the ducts are not only usually open, but the quantity of bile poured through them into these organs is often enormously increased. In hot climates, especially, this circumstance constitutes the bilious habit so generally complained of, (and which, when once established, is so difficult to remove), between the tropics.

The activity of this fluid too is there observed to be increased in an equal ratio with its quantity. If the increase of secretion in the liver is dependent on the red globules, as has been asserted, the observation, that athletic persons are most subject to what are called bilious complaints, is easily explained.

* The sick headach is supposed to be owing to deficiency of bile in the duodenum from spasmodic stricture at the duodenal extremity of the ductus communis choledochus, in consequence of which that intestine falls into an atony for want of stimulus, and the stomach sympathizing with it, generates an acid. This headach I have experienced to be almost invariably relieved by a few grains of calomel. Drinking a draught of warm water at bed time dilutes the acid, and gives temporary ease.

But in what manner does mercury remedy these complaints? It has been generally supposed, that it increases hepatic secretion; and indeed, it has been asserted, that the influence of this medicine on the liver is equally determinate with that which it exercises on the salivary glands.*

Dr. Sanders remarks, that the gall bladder and ducts are destitute of muscular irritability. This explains the phenomenon, so generally noticed in dissections, a turgid state of that sac, and a redundancy of the fluid in its cavity, but at the same time somewhat increases the difficulty in solving the salutary action of mercury; because it weakens the hypothesis of a stimulant effect on that organ, by which it might promote a discharge of the viscid bile contained in it, and obviate the causes of future stagnation.

The use of mercury, in the East Indies, in hepatitis is well known; and the sovereign efficacy of this medicine in the cure of that disease, has long been promulgated throughout the medical world. Dr. Sanders, however, is of opinion, that in recent inflammation of this organ, as well as in jaundice with symptomatic fever, mercury has a tendency to promote suppuration.

The East India practice, it seems is, not to use it till after the first inflammation has subsided, when

* Mercury is said sometimes, however, to have produced schirrossity of the liver in the same way as dram drinking. Vide Beddoes's Hygeia, Essay 8th, p. 126, Vol. ii. This is doubted. Mercury does mischief in patients who are scorbutic.

it acts as a spur to the vascular system of this organ. Some of the practitioners, however, thought it necessary only to observe the precaution of bleeding before using it; after which, it might be given with safety. This was the mode adopted by Dr. Dick of Bengal. He gave calomel in doses of from 2 to 5 grs. every night, until the mouth was affected; and, almost invariably, within ten days cured the patient. Suppuration under this course never ensued.

Dr. Sanders supposes acute inflammation to be seated in the hepatic artery, and chronic in the vena porta.

In cases of schirrosity, mercury was supposed to excite the action of the torpid vessels, and, carried to the point of salivation, it generally succeeded. When suppuration had taken place, it was of no use.

Dr. Hamilton had eighteen years' practice in complaints of this kind; and found it invariably advantageous.

Dr. James Currie, physician to Guy's hospital, who had been in India in 1786, testified in favour of mercury in hepatic complaints, but used it merely for the purpose of emulging the ducts, not of salivating; and found calomel the only medicine to be relied on for this purpose. The astonishing success of this treatment, in the hepatic affections of India, induced Mr. W. Scott, at Bombay, in 1793, to make some experiments to ascertain, whether there might not be some chemical affinity between this metallic substance and the bile which is so generally concerned in diseases of that country.

He mixed the resinous base of the bile of a buffalo with half its weight of the red calx of mercury and 10 or 12 ounces of water. On heating the whole, he was surprized to find, that the bile became more soluble in water. This he supposed was owing to the oxygenation of the resin by the pure air of the calx.

These diseases of the liver being supposed to arise from deposition of the resinous parts of the bile upon that organ, it was readily inferred from this experiment, that they were cured by the oxygen of the mercury uniting with the resin, and rendering it soluble in animal fluids.

M. Fourcroy had before proved, that similar effects were pruduced by nitric acid consisting of four parts of oxygen and one of azote; and it was said to have answered the same purpose as mercury in these complaints, free from some of its inconveniences.

But neither of these hypotheses seems satisfactorily to explain the power of this medicine in *checking* the tendency in the liver to *increased* secretion, one of the usual attendants on yellow fever.

This, it is suspected, must be sought for in the known stimulant power of mercurial oxides. By exciting a new action in the hepatic system, the morbid affection is superseded; and consequently, the cause, which produced a superabundant secretion, is removed.

That this new stimulus is calculated to produce increased secretion in some torpid affections of the

liver, where it is deficient, is indeed undeniable; and it appears in this way also to diminish them, where they are already too great, the medicine having a sort of equalizing or balancing influence over the system. When this new order of things has once taken place in the liver, as well as in the other organs to which mercury has a special determination, the process is in the regular course of mercurial action, and the healthy state of the organ is restored so soon as this course is performed, the healthy functions assuming their customary order, as that introduced by the medicine subsides.

A SIMILAR power is exercised over the blood vessels in fevers. Mercury quickens the pulse in health; in disease it renders it slower by subduing the morbid excitement.

THE difficulty of producing a new train of action in these diseases is, generally, in proportion to their violence,* or rather to the degree of organic lesion; and the impossibility of doing it, in some cases, arises from the destruction of parts, by which the principle of vitality is extinguished. In these cases dissection commonly demonstrates incipient mortification or suppuration of the viscera.

IT has indeed been objected to the mercurial method of cure, that it is too slow in its operation to

* In the Philosophical Transactions is a table, in which certain classes of medicines are adjusted, mathematically, to all ages, classes and constitutions. It is suspected that the disease in question would have confounded the calculations on which it was founded.

answer the purpose in very acute cases; and the circumstance of invariable recovery where salivation has been produced, was supposed to prove only the mildness of the disease. But the sudden changes frequently produced under some of the most dangerous circumstances, appear strongly to support the efficacy of the treatment.

From the foregoing details, a considerable difference in the symptoms of yellow fever is observable, but whether this epidemic, which within a few years visited so great a proportion of the West India Islands, was one and the same disease, it will be extremely difficult for an impartial inquirer to decide.

Dr. H. Jackson, though at first of a different opinion, from further experience concluded, that the yellow fever is the ordinary epidemic of the West Indies. The varieties of constitution, climate and season, must undoubtedly produce a very considerable variety in the forms of the same disease; and the state of the organs, as discovered by dissection, will of course be dissimilar in different subjects, and in different climates.

In most of the histories which have been given of this fever, in places where it has appeared, we find cases of both descriptions, of strong and weak action.

It is a fact, that inflammation of the stomach is usually attended with depressed pulse. In all diseases too, in which the parts principally affected are those, between which and the stomach a sympathy

is established, the same affection of the artery has been noticed. The pulse in these cases is quick, small, and hard.

May not this established principle in the animal œconomy account, in some measure, for the different phenomena observed in the commencement of these fevers, and solve the enigma which the strange disagreement among writers on this subject, in their descriptions of the fever, has presented to the view of the medical inquirer.

It may perhaps be answered, that though this hypothesis may account for a difference in the symptoms of some few individuals labouring under these diseases, yet we have no authority for believing this principle to constitute the character of any of the epidemics which have been known to prevail. But may we not conceive it probable, that amidst the great number of discordant histories of epidemics on record, the characters of some of them may have been derived from such individual cases.

It is well known that in some seasons affections of one particular organ are most prevalent, and in other seasons of some other; and had dissections of those who have died been more general, this might have been demonstrated.

The dissection of persons who have died of epidemics apparently of *different* characters seems to prove, that these determinations to different organs are not peculiar to either of them in particular, as they have been found in both.

The dissection of persons, who have died with yellow fever in particular, have proved indisputably, that the viscera are locally affected by this disease.* Dr. Lind, in the fever of Cadiz, in 1764, found the stomach and intestines inflamed, and the liver and lungs bordering on putrefaction. Dr. Home, in Barbadoes, found the biliary organ full of bile, the liver enlarged, the stomach and duodenum inflamed and on the point of mortification, the gall duct not obstructed.

Dr. Sanderson examined eighteen bodies, and found the appearances in the brain different from those in Grenada and most other places. In two, the cystic duct was obliterated or totally obstructed.

In Grenada, the vessels of the brain were found extremely distended with dark blood; the liver was either shrunk or uncommonly flaccid, and of a cineritious colour; the lungs were highly inflamed, as were the stomach and duodenum.

In Philadelphia, Dr. Rush observed, that the liver was less affected in the fever of 1793, than in that of 1762; but is notwithstanding of opinion, that congestion is the cause of death. Dr. Annan, in a dissection at Bush Hill, found the brain distended with blood. In Dr. Mitchell's dissections in Virginia, in

* Drs. Physick and Cathrall, in their dissections in 1793, at Philadelphia, found the stomach and beginning of the duodenum to be the parts most diseased; with gangrenous spots; the bile in the gall bladder to be extremely viscid, and the matter of the black vomit to be an altered secretion from the liver. Dr. Rush on the yellow fever, p. 120.

1737 and 1741, the gall bladder was full of viscid bile. Dr. M'Kittrick, in his inaugural dissertation on yellow fever, observed the same thing.

The remote causes producing these affections are various; in general, they were found to be most prevalent in dry situations. Dr. Jackson observes this to have been the case throughout the West Indies In Barbadoes, in 1753, this was remarkable, according to Dr. Hillary, after very dry and hot weather; and delirium has been observed to be more common after the commencement of frosty weather. Dr. Rush conjectured, that the stimulus of the disease determined the fluids more particularly to the liver, stomach and bowels, and disposed them to inflammation, as the contagion acts specifically on them.

That these organic determinations do constitute a very prominent feature in yellow fevers in general, is incontestibly proved by a twofold evidence; for not only the sufferings of particular parts during life, but examinations after death have also demonstrated the fact. An engorgement of the brain, and a congestion of blood in the liver, in the stomach, and intestines, as well as sometimes in the lungs, prove, that the balance of the system is destroyed, and call for means that shall restore it. To equalize the circulations and promote absorption, seem to be the great object in these cases; and mercury has ever been considered as most effectual for these purposes.

Mercurial medicines have been generally considered as particularly adapted to diseases of contagion

and of inflammation. That intermittents partake of neither of these properties is generally allowed.

A SIMPLE ephemeral fever which has but one paroxysm terminates in twenty-four hours, is never contagious; nor is it probably inflammatory.

INTERMITTENTS appear to be made up of similar periodical paroxysms, and are nothing more than a repetition of them, owing to an imperfect crisis in the first or preceding paroxysm.

FROM the symptoms of intermittent fever, then, there is no indication to be deduced in favour of mercurial treatment, if we except the yellowness of the skin, which however, is not characteristic of the disease. From a view of the remote causes of this disease, marsh miasmata, it might possibly be thought consistent with analogical inference, that a process of this kind would be justifiable, from the relation subsisting between these and the endemic remittent fever, through their remote causes. This latter disease has also been generally attributed to causes of a similar nature with marsh miasmata.

HENCE as mercury is supposed to be the proper remedy in remittent fever, the application of the same medicine to intermittents might be not altogether indefensible.

BUT a stronger argument is furnished in favour of this practice by the proximate cause of intermittents, as discovered by dissection.

DR. CLEGHORN examined the bodies of near one hundred persons, who died with these fevers, and constantly found the omentum, mesentery, colon,

&c. of a deep black complexion, or totally corrupted; the gall bladder full and turgid, and the stomach and intestines overflowed with bilious matter; the spleen enlarged, weighing four or five pounds, and extremely soft and friable.

THOUGH it does not fully appear that the liver is the principal sufferer in these genera of diseases; yet, that local affection, which has commonly been considered as the proper object of mercurial practice, is at least a part of the proximate cause, seems so fully established, as to need no further support. But as a much surer and almost unfailing remedy is supplied by the peruvian bark, mercurials are seldom employed in the course of intermittents, and are resorted to only in complaints consequent on the disease. A torpid state of the affected parts is frequently observed to take place after the fever is removed; and mercurial stimulants have been used with success to restore to them their action.

A SINGLE dose of bark will sometimes break the force of the succeeding paroxysm, though exhibited but just before its access; and like spices, ardent spirits, and opium, will produce its effects upon the system at large by its immediate action upon the stomach alone.

THAT mercury does not act thus immediately on the stomach, but exerts its stimulant effect on the system in consequence of absorption, and breaking the morbid catenations, has been before observed; and this constitutes a very material discrimination between these different articles of the stimulant class.

By its well known effect in restoring the equilibrium destroyed in all cases of visceral lesion, it may, after having had time to enter the system, prevent the paroxysm by the same means which are employed by nature to restore the equality.

From this immense weight of evidence, in favour of mercury in yellow fever, it might be considered as scepticism in any one who should doubt the success of this practice. And one might be almost tempted to exclaim, with Dr. Chisholm, in India, in England, in North America, and in the West India Islands, medical gentlemen totally unconnected with each other, have recurred to the same practice, and hesitate not to declare to the public, that the event has been uniformly the same.

Its success has, however, been controverted.

At the head of the opposition to this practice stands the very able and intelligent Dr. R. Jackson.

He admits, that, as an evacuant, it has been employed with superior advantage; but, as a general remedy, he doubts its efficacy; and thinks, that the result of Dr. Chisholm's testimonies does not warrant a favourable conclusion; for the mortality in the detachment of royal artillery, on which it was first tried in its full latitude, he thinks, was greater than common.

From the use of it in St. Domingo, he concludes, that in slight cases of yellow fever, when the mouth is affected, the fever is observed to be diminished, but this seldom takes place till the disease has abated; for when the symptoms are violent no salivation can

be produced. Hence he advances the opinion already recited, that salivation, instead of being the cause of the abatement of the disease, is only a signal of its departure.

Dr. Lind's experiments are adduced to support this opinion. Fifteen cases were treated with mercury from the earliest stage, (the first day,) of the disease. Five died, in three of whom salivation took place. Five, who were not salivated, recovered. The other five, who recovered, were salivated, but, as usual, not till the violence of the symptoms were abated. Of four, that were put under his care on the second day of the fever, none died. One only was affected (apparently) by the mercury. One, brought to him on the third day, died. Mercury was used, but no salivation could be produced. One brought on the fourth day died also, without salivation, and one on the fifth, who was salivated. In none of these was less than ten drachms, and in most, not less than two ounces of strong mercurial ointment employed, with all other usual means calculated to promote the expected effect. But as this method often endangers life, and is extremely uncertain as to the sensible operation, he thinks the practice dangerous.

Dr. Sanders expresses strong doubts of the utility of mercury in bilious fevers; but he admits, that febrile poison has a strong tendency to promote congestion in the liver; and suspends a final judgment on the question, on account of the discordant opinions of writers on this subject. The fact of increased biliary secretions might, perhaps, lead him to

these doubts respecting mercury which is supposed to promote them. Dr. Nassy condemned it, together with many of the ancients, because he supposed it dissolved the blood.

But the force of these objections will in some measure be weakened by two considerations. First, That, though in Dr. Lind's experiments the abatement of symptoms preceded soreness of the mouth, it does not follow that this might not have been owing to the action of the medicine on the disease, before its effects became sensible. This indeed may operate as an argument against the necessity of salivation, but is inconclusive, as it respects the mercurial efficacy in removing the disease. Secondly, That the power of mercury in diminishing morbid secretion may be explained on the principle of changing the mode of action. And, third, That no evidence has been offered to prove, that the blood is dissolved by the action of mercury.

PART III.

SECT. I. PRACTICE WITH MERCURY IN TYPHUS.

As the descriptions of the West India epidemic have comprehended some variety in the forms of fever, and as it has been urged, that yellow fever, and jail, hospital, or camp fever are only varieties of the same disease, the discussion of the use of mercurial medicines in typhus may be considered as in some measure anticipated in the foregoing pages.

We presume not to determine, whether typhus icteroides, as it has been called by some authors, or typhus cum flavedine cutis, as, in the nosological arrangement of Cullen it has been denominated, is the same disease, which in tropical climates has been commonly described under the name of yellow fever; but of one thing we are fully convinced, which is, that in this place, the typhus, or as it has often been called slow nervous or putrid fever, is of a totally different character from yellow fever, as it appeared in Boston in 1798 and 1802.

The typhus, which has often prevailed here, has, (as has been suspected,) been sometimes contagious. In the year 1780 it was prevalent in the Alliance frigate, which on her arrival in Boston had a large number of persons sick, who were immediately sent

to the hospital in this town: The symptoms were entirely different from those of the yellow fever, which afterwards spread such alarm throughout this part of the United States; and the disease doubtless originated from human contagion, commencing on board, from the peculiar circumstances of that ship. In an attendance on a large number of these cases scattered in various parts of the town, as well as contained in the crowded hospital, destitute of many of those accommodations which, under any other than the existing circumstances of the country might have been afforded, I had the misfortune to be attacked with the disease, and noted its progress with particular interest.

An extreme degree of lassitude, which, under circumstances of extraordinary bodily and mental exertion, might have been mistaken for the mere effect of fatigue, usually commenced the disease, and continued three or four days, before the complaint excited much attention from the patient. Then ensued pain in the loins, temples, and back of the head; yellow tongue, weak and quick pulse, yellow and dry skin, and extreme thirst, without any relief from drinks. After the fifth or sixth day the fur upon the tongue usually assumed a blackish colour; and the intestinal canal was obstinately constipated. To these symptoms succeeded, in fatal cases, slight delirium and coma, gradual diminution of all the vital powers, and, on about the 11th or 12th day the death of the patient.

Dr. Huxham had remarked, that in slow nervous fever spontaneous salivation, without aphthæ, proved salutary; calomel at this time was nevertheless used, only to evacuate the stomach and bowels, being combined for the most part, either with tartarized antimony or rhubarb. Three or four grains of calomel with one and a half of tartarized antimony, were usually prescribed in the commencement of the fever, and generally produced the most happy effect by evacuating very large quantities of, apparently, very vitiated bile; and a repetition of the dose was often judged necessary within the first week of the disease. If this did not produce copious evacuation from the intestines, as well as the stomach, which was, however, usually the case, the famous ten and ten, as it was called of Dr. Young, was resorted to, and with very salutary effects. This was a powder of 10 grs. of calomel and 10 of rhubarb, and was, at that time, considered as a powerful cathartic.

Dr. Young had been a physician in Boston, till within a few years of this period, and had acquired the reputation of a rash practitioner from his use of this medicine. That it generally operated powerfully, I can attest, and recollect having seen a patient, whom, between thirty and forty discharges produced by it, brought to the brink of the grave.

How it happens, that in the present day a dose of this magnitude is very seldom found to operate very forcibly, it is not easy to decide—that jalap instead of rhubarb was sometimes combined with the calo-

mel is probable, but it is certain, that the common form of Dr. Young's prescription in Boston was rhubarb and calomel.* This however is a very strong instance of the efficacy of combination in medicines of this class, as the effect produced far exceeded the ratio of their respective quantities. After these preparatory means, the cure was commonly committed to nauseating doses of antimony; and occasional repetition of rhubarb and calomel. The peruvian bark was resorted to at the close of the febrile stage; and even before this period, if any of those marks which are usually considered as denoting putrefaction, such as blackness of tongue or putrid evacuations from the bowels occurred. The remissions were, in most cases, sufficient to admit of this practice.

The use of mercury, as a general medicine in typhus, had not at this time even been proposed to the consideration of the American physicians; and indeed, it was long after this that it obtained much credit in any place.

In the autumn of 1796 a similar fever with that above described, made its appearance in Boston, and excited much alarm among the citizens from an apprehension that it was the yellow fever, which had recently made such havock in Philadelphia.

Its symptoms were similar in most respects to that of 1780, but with more severe pain in the limbs, and oppression at the præcordia. Jalap and calomel

* Dr. Rush changed rhubarb for jalap in the hospital at Philadelphia.

were exhibited to the first patient without effect; and she died at the end of the fourth day. The second had calomel and opium, but could not retain a single dose of any thing in the stomach, and she died also on the fourth day. Neither of these had any yellowness of the skin.

On the second of September, seven days after the first person was attacked, a son-in-law of one of the above patients who had died, and within three days from that time, three others of the family, his wife and her two brothers, were seized with the fever. Three of these recovered, after large and repeated doses of jalap and calomel, aided in two instances by emetics; and in one by affusion of cold water. The other, without any other treatment than the purgatives, from certain unfavourable circumstances at the time of seizure, died on the fourth day. In two of these cases the attack was in a milder form, and the disorder ran on without very alarming symptoms, but with a thicker and darker fur on the tongue, till the eleventh day, before any sensible change was observed; after which the recovery was slow as in common typhus, and was not completed until the fourth week.

In a few of the subsequent cases petechiæ were discovered in all parts of the body, accompanied with dysentery or diarrhœa. In some cases a sense of heat at the stomach was a prominent complaint, and hemorrhage from the nose continued for several days to be a troublesome circumstance without any mitigation of the symptoms. Large discharges of bile

were common from both stomach and bowels; the urine was highly tinged with bile. The crises were seldom very sensible or perfect, but when they did take place, were usually in the form of diaphoresis. From ten to fifteen grains of calomel alone, frequently repeated, commonly effected the cure with more certainty, than when preceded by emetics. Antimonials and blisters were superadded to this treatment; and in the highest stage of the fever the cold bath was used with great advantage. In two cases the black vomit took place.

A VERY great proportion of the sick inhabited the neighbourhood of extensive flats about the easterly, southerly, and westerly parts of the town, and the vicinity of the docks and wharves of those quarters.

IN most families, where one person was seized, others became sick, and in some almost every adult person became ill.

OF fifty persons under my care, nine died; two from circumstances foreign from the disease.

ABOUT thirty died in the whole town.*' The black vomit, which took place in two only of the whole number, can by no means be considered as pathognomonic of yellow fever, as I have seen it take place in puerperal fever from uterine inflammation, as well as in other cases of visceral affection, without marks of malignity.

As to importation in the above recited cases, there was not the shadow of a reason to suspect the possibility of it.

* Vide Medical Repository, Letter to Mr. Eliphalet Pearson, p. 136. vol. i.

The congestions, which have been so commonly attendant on yellow fever, were not noticed in this; extreme irritability of the stomach was, notwithstanding, sometimes a very troublesome symptom, supposed to be consequent on an inflammatory state of that organ.

On these occasions calomel and opium given in pills to the amount of one, two, or three grains of the former, repeated at intervals, till copious evacuations from the bowels took place, had a salutary effect. Some of the early advocates for this plan in more concentrated forms declare, that it is equally successful in those slow fevers which would be called nervous by European physicians. The opinions and example of Dr. Rush, and other learned physicians of Philadelphia, had recommended the use of mercury in typhus, and the same treatment had been adopted by the physicians of Boston.

Dr. Rush, in typhus mitior, found, on salivation taking place, the pulse becoming full and slow with evident relief.

The petechial eruptions in typhus are supposed by Dr. R. Jackson to be owing to a loss of tone in the venous system; and the stimulant power of mercury seems well adapted to the purpose of restoring it.

On dissection in typhus, Dr. Crawford discovered that the intestinal canal was coated with a thick mucus. This circumstance I have often observed attendant upon patients labouring under protracted cases of typhus; and in many instances, after a mercu-

rial course had been unsuccessful in the beginning, I have seen surprising effects from a return to the medicine.

Where calome had even affected the gums, it would sometimes happen, that, either from the relief not being so immediate as had been expected or from some peculiarity of constitution, it had been thought proper to suspend it, and the disease continued to run on, till the patient's strength was so far exhausted that apprehensions were entertained for his safety.

The debility in these cases had become excessive, and the febrile action being reduced, wine and bark had been copiously prescribed with a generous restorative diet, but with very little benefit. This coated appearance was exhibited by the tongue, even long after the direct effects of the mercury had subsided; and probably extended far into the alimentary canal.

A few doses of calomel excited the system to action, and the patient began immediately to recover; and, I may venture to say, in no cases of typhus had I seen more evident advantage from mercurials than in these.

Sporadic typhus has appeared at all seasons in this place; but more especially in the commencement of cool weather in autumn, and in the beginning of winter. It has generally been treated with bark and wine after mild evacuations; and the mineral acids, especially the muriatic, have often been conjoined with these medicines.

Calomel, with opium, has sometimes been administered, but not generally to the degree of ptyalism.

Since the year 1796, this disease has never been epidemic in Boston. But almost every autumn it has been known to run through some whole families, and even to infect the visitors that came within the sphere of its action. In these, small doses of calomel, in the beginning of the fever, have been principally relied on; and bark in its decline.

In the winter of 1804 and 1805, a typhus with uncommonly malignant symptoms made its appearance in this town. As the circumstances which attended it, were, in some respects, peculiar, and different modes of treatment were adopted for the cure of it, a short history of some of the cases may not be altogether useless to the medical inquirer. Having been occasionally called in to visit several of the patients, I was witness to some of the most striking appearances which attended them; but for such of the minutes of the particular cases as my own attendance did not enable me to supply, I am indebted to Dr. Rand, sen. whose judicious treatment may be considered as an example of the most correct mode of practice, and who attended several of them from the beginning, alone.

First case. T. E. aged fifteen, employed in a store on Central wharf, in the beginning of December, 1804, began to complain of slight pain in the head, languor and lassitude; and being too unwell to continue his services in the store, returned to the house

of his father, situated in Middle-street, near the head of Cross-street. The house is of brick, rather small, and with a northerly aspect. When visited by his physician, which was in the middle of the month, his countenance was remarkably pale, his appetite gone; he had nausea and slight vomiting; his tongue was covered with a thin whitish fur, pulse small and frequent; he had universal uneasiness, but was free from pains, excepting slight ones in the back and limbs. He had a constant chilliness, which made him unwilling to leave the fire a single moment, in consequence of which, he insensibly blistered his legs.—These symptoms were attended with restlessness in the night, which deprived him of sleep, and with obstinate constipation of the bowels.

An emetic was administered, which operated kindly; and the next day an infusion of senna, which produced copious evacuations of a black and very offensive nature.

On the day following, as the debility was extreme, and the surface of the body appeared destitute of colour and warmth, cinchona and snakeroot were liberally prescribed. Blisters were applied to the neck, temples, behind the ears, and on the extremities.—Wine, porter and cyder were freely allowed him. On the third of January, 1805, the course having been varied occasionally with ether, tinct. cinnam. and laudanum, he died, it being about the twenty-seventh day from his seizure.

The spots, which had been blistered by the fire, before his death, assumed a purple hue; and others

had appeared about his ears, but immediately subsided.

Second. On the twenty-third December, G. E. brother to the deceased, after five or six days labouring under the precursors of fever, became the subject of medical attention. He had slept with his sick brother, though efforts had been made to have him removed. He first complained of pains in the head, loins, and most of the muscles of the body, was alternately, at short intervals, cold and hot; had a nausea, and was costive; his tongue was covered with a dark fur in the middle, and a whitish mucus on the sides.

He was ordered an emetic, which operated well, and afterwards a purge, which caused discharges of large quantities of black, putrid, and very offensive fœces. The next day he began with calomel in small doses, which soon affected the glands of the mouth. The fever, notwithstanding, ran through its various stages; the tongue became black and dry; he fell into a state of insensibility, and continued in it without speaking, for a number of days before the termination of his fever. Ether, laudanum, blisters to the back of the neck, behind the ears, on the temples and the extremities, were the principal remedies used after he became insensible. Very little of nutriment or drinks could be forced into the stomach, till about the nineteenth or twentieth, when the fever left him, and he recovered his senses. He was soon after able to sit up in his chair; his appetite returned, and was, perhaps, indulged to his injury. He began to acquire flesh, till being carried below stairs, at his urgent

request, to see his deceased brother, after five or six days convalescence he relapsed. A colliquative diarrhœa having set in, and exhausted his strength to an alarming degree, it was corrected and restrained by rhubarb, tinct. of cinnamon, and laudanum. At this period of the complaint I visited him with Dr. Rand, and found him extremely debilitated, and affected with a remarkable tumefaction on the right side of his face. On inspecting the inside of the mouth, an incipient mortification was discovered. The next day it had so far advanced, that he with great facility extracted the grinders of that side with his fingers; and it was remarkable, that no blood followed. At this time a small black spot began to shew itself on the outside of the right cheek; this in a few days extended itself over the whole of that cheek, which now became quite black; and all that side of the face became mortified from the inferior edge of the lower jaw to the orbit of the eye, and as far back as the ear.

The eye was destroyed, and the face so distorted by the tumefaction on that side, that the countenance was a spectacle too shocking to behold. Liquids taken in by the mouth were discharged through the cheeks. He never lost his senses after the relapse, and took every day more than a bottle of Madeira wine, besides porter, brandy punch, cider, and as much liquid nourishment, as when well. The gums were sore from the calomel; but he expired on the twentieth of January, about the fourteenth day from the return of his disease.

Third. E. E. was seized on the twentieth, with the same disease, under similar symptoms. Calomel in small doses was given him, and as he could, neither by force nor persuasion, be induced to take any other, the case was trusted to this medicine alone, excepting the application of blisters to the nape of his neck and behind his ears; his mouth became sore, and he recovered, after a large abscess behind his right ear, which suppurated and healed kindly.

Fourth. E. aged ten, was at about the same time taken sick. She was immediately put under the use of mercury; and being speedily removed into another house, rapidly recovered, after having taken only half dozen pills, containing each one grain of calomel.

Fifth. Eliza E. during the chief part of the illness of her brothers and sisters, had laboured under leucorrhœa so profuse, as extremely to debilitate her; and had, in consequence, been confined, part of the time, to her bed in the same room with one of the sick; but as she made no great complaint, she was not particularly attended to; and there was no suspicion of her having any other disease till at an advanced period, when she first became the object of medical attention.

On the first examination were discovered, on her feet and legs, large petechiæ with elevations of the cuticle filled with a black sanious fluid. The whole surface of her body was covered with vibices, and black stripes in various directions. Her pulse was very small and quick, with coldness of the extremities.

In a few days she became delirious, screaming as if in extreme pain, but incapable of pointing out its seat. Her face early began to swell, and was of a cadaverous hue. The discharges from the bowels were black, putrid, and highly offensive. Swellings of the face and abdomen alternated with each other. She received very little nourishment, and scarcely a particle of medicine, it being impossible from her delirium and state of the stomach to get it down; and she died the last of January. The body became yellow after death, and putrefaction advanced with unusual rapidity.

Sixth. Sarah E. had scalded her feet a little before her eldest brother Thomas had sickened, and was confined in the chamber unable to walk, being carried to and from the bed. She lodged with one of the sick children, until the death of her sister Eliza. Notwithstanding her breathing the contaminated air of the sick chamber, so long as the sores discharged,* she continued in health, with a great appetite, and slept as well as the groans of the sick and dying would permit. The sores healed, and she immediately became sick. She was removed to a house at the westerly part of the town, and was directed to take the calomel. This she pursued for three days with evident advantage, though no ptyalism was produced. A blister was applied to the nape of the neck, and she appeared to be on the recovery.

* Dr. Carmichael Smith, on jail fever, observes, that persons who have issues are seldom affected by contagion, p. 48.

On the 30th of January she was sent home to her father's family. On the 31st I visited her, and the symptoms at this time were a hot and dry skin, pulse 140 in a minute and very small; tongue covered with a fur perfectly black; breathing remarkably good, and slower than in the common ratio to the pulsations of the heart: this organ performed rather more than four systoles at a single complete act of respiration; but a troublesome cough at times interrupted these functions, and she for some days expectorated very freely; but nothing more than a yellow mucus was thrown off the lungs.

February 1st. Symptoms nearly as yesterday. The cold ablution had been proposed, but on account of the increase of the cough the tepid was preferred. She had muscular strength enough to enable her, with a little assistance, to walk to the fire, where she was placed, naked, in a chair, and was sponged with vinegar and water, which afforded her much refreshment, and brought on a moisture upon the whole surface of her body. She was ordered to take a table spoonful of diluted muriatic acid made pleasant with conserve of roses, every hour. Pulse 135.

2d. The ablution was used much colder than yesterday; passed a comfortable night, and had an universal moisture.

3d. The muriatic mixture produced vomiting; it was therefore suspended, and the haustus salinus, in doses of a table spoonful every three hours, was substituted, which kept the bowels open. The

sponging was directed to be used entirely cold, this evening.

4th. Had a restless night; increase of cough and heat. Pulse 145; medicine continued.

6th. Symptoms the same; complained of a pain in the back of her neck; had a blister to the part. The fur on the tongue beginning to cast off; drank freely of wine. A delirium having come on in the course of the day, she had her head shaved, and a blister on the part.

8th. Had a good night—A diarrhœa having taken place, an anodyne was directed, and the haustus salinus and muriate mixture, alternately, through the day. Urine extremely turbid, with a whitish sediment; stools yellow.

9th. Diarrhoea continued; urine and stools bloody; pulse 140. Prescribed tincture of cinnamon, and the muriatic mixture.

10th. Worse in every respect; total loss of strength, and delirious at night. Tongue covered with a yellow fur.

11th. All the symptoms aggravated; pulse 148, scarcely to be counted; skin hot and dry. Directed the hands, arms, breast and neck to be frequently washed with cold water; and ordered her to be placed on the sacking of another bedstead, and washed all over with cold water; then to be replaced in her bed, and the re-action promoted by universal friction. Cold water allowed for her drink with as much ice, which she was fond of taking, as she could dissolve in her mouth. Two spoonfulls of

Huxham's tincture were given every hour, and as much wine as she could be prevailed on to take.

12th. Pulse too quick at night to be counted; in other respects apparently better. Urine discharged without blood.

13th. Passed a quiet night; pulse 120; respiration 32 in a minute. Cold ablution ordered to be used every day; heated parts to be washed occasionally with cold water. She had two alvine discharges of proper quality; moderate perspiration. Ordered the tincture of bark every hour. At night respiration difficult from stricture; changed the bark for muriatic mixture, which immediately relieved it.

14th. Had a restless night with delirium; fur on the tongue; pulse 120. Continued the muriatic mixture, which invariably produced a moisture when from use of the bark the skin had become dry, and obviated costiveness.

15th. Pulse 140, irregular and intermittent. Had a bad night; could not be persuaded to take the medicine; fur on the tongue increased; no perspiration.

16th. Pulse 140. She was more restless, but less delirious; was extremely deaf. The weather being excessively cold, and the cutaneous heat much diminished, the ablution was discontinued. She had an appetite for animal food, which was allowed her.

17th. Had a good night; was stronger; walked from the bed to the fire. Pulse 130, very small; tongue became clean; urine deposited a favourable

sediment, respiration perfectly easy; skin moist; cough subsided. Took wine and bore the cinchona; was indulged in animal food more largely.

20th. Gradually recovered; had a number of very large and painful phlegmons on her back and arms, which suppurated slowly. From this time her strength increased, but the pulse continued very small and frequent, and on the 14th of March it was 110.

No calomel was given to this patient after her relapse. The case was considered as desperate from the beginning, as an instance of recovery with so bad a pulse had scarcely ever been known; and it was supposed, that there was not vitality enough remaining to admit of any advantage from this medicine; the strength appearing to be almost totally exhausted.

I have never seen a more fair experiment of cold affusion than in this; and in every repetition where the heat was great and the skin dry, the relief was great.

Cases more completely malignant had seldom been known in this place. That the disease was contagious, was strongly suspected by many, from the number of persons attacked in the family. One of the relations who had assiduously employed herself in kind offices at the sick beds of those who had died, was seized with the disease, and shortly after died. Yet it is a fact, that other persons, who were constantly in the infected chambers, escaped; but every precaution was made use of to prevent the contamination of the atmosphere; the walls of the house

were white washed throughout; the floors and wainscots scoured; and fumigations employed to purify the air.—Every part of the house was searched; but no probable source of the mischief could be discovered.

Remarks. 1st. This disease was totally different in its character, from what is called the yellow fever; for it was generated in the coldest weather, whereas yellow fever ceases on the approach of frost.

2d. It was in most of its symptoms correspondent with the jail, hospital, or camp fever, which is known to be the product of animal action, or the altered excretions of the human body.

3d. Calomel, in doses comparatively small, had a beneficial effect in two cases as a general, or (as it has been called) an alterative medicine.

4th. The running from the sores of the patient, who was scalded, doubtless prevented her receiving the infection as long as that discharge continued.

5th. The cold ablution had a favourable effect, when the heat of the skin was considerable; but after that subsided, ceased to be useful.

6th. The muriatic acid had a remarkable effect in opening the bowels, promoting perspiration, and probably in checking the hemorrhage from the intestines and urinary organs.

7th. Abcesses, which did not take place till the convalescent stage of S. E. were the consequence of increased energy in the vascular system.

In June, 1804, in a family living in the neighbourhood of the mill pond, a fever of the same kind which had so frequently in years past made its

appearance at the southerly part of the town near the flats, commenced in the person of Mr. R. H. He was seized on the 8th of June with slight chills, and other symptoms, as usual in this disease. He had pains in the head, back and limbs; hot and dry skin, pulse small and frequent, tongue covered with a yellowish fur. He was affected with uneasiness at the præcordia, a slight degree of nausea and constipated bowels.

An emetic of calomel and tartarized antimony was first prescribed for him, which produced evacuation upwards and downwards. On the tenth, pills of calomel and opium, consisting of two grains of the former, and one quarter of a grain of the latter, were given him every four hours. Antimonials were ordered between these doses. Calomel with jalap was given at intervals of two or three days, to prevent accumulation in the intestinal canal, and evacuations of bilious or fæcal matter were produced.

The symptoms increased very gradually, till the 13th, when the distress in the abdominal region became alarming. A sense of heat in the episgastrium, and tumefaction of the whole abdomen now constituted the prominent features of the case. The pulse became daily weaker and more frequent, the tongue more furred and of a darker colour, with irritability of the stomach.

Mucilaginous fluids were injected into the rectum, and sometimes those which were more stimulant, but they produced very little effect. The abdomen became exceedingly tumid, especially

about the region of the stomach, with great tenderness of the part.—The mouth had become slightly sore from the calomel; but as the symptoms increased, this affection subsided, the pulse still smaller, the respiration more difficult from the distension of the abdomen, and scarcely any diaphoresis could ever be produced. Tonic and stimulant medicines, the bark, snake root, ether, and wine were freely administered. A blister was applied over the whole abdomen, which vesicated properly, but without relief. The tongue became darker, the strength exhausted; and on the 18th, dissolution ensued.

A NURSE in the family, two children of the deceased, his wife, and her brother, were seized with similar complaints; and with a few doses of evacuant medicines readily recovered, excepting Mrs. H., who was taken on the 1st of July, after the others had recovered. She was treated in the beginning much in the same manner as her late husband; became extremely ill with similar symptoms, excepting the distress and swelling of the abdomen, and did not become convalescent till near the middle of August.

3d. MRS. C., mother-in-law to Mr. H., who had visited the family, was seized with this fever on the 24th of July, was evacuated in the beginning, took opium and calomel; had a sore mouth; was better; relapsed, and died on the 5th of August.

4th. MISS W., niece to Mr. H's father, having visited in the family, was taken sick on the 29th of July, and was treated much as the last. She became delirious about the third week, had the most unfa-

vourable appearances, till towards the latter end of August, when she began to mend; and after several weeks recovered.

Within the abovementioned period, about as many as fifteen persons, who had communicated with each other, were taken sick, but most of them slightly, and were restored to health, chiefly, by moderate evacuations.

Dissections. The body of Mr. H. was examined. Immediately on opening the abdomen the tumefaction was discovered to be formed, principally, by air, not contained loose in the cavity of the peritoneum, but in the transverse division of the colon, near the convex and anterior edge of the stomach.—An immense quantity of fœtid flatus was discharged from this intestine, which on examination was found to be highly inflamed, with its coats thickened, and slightly adhering in some parts to the peritoneum.

The stomach was found, in that part of it nearest to the intestine, to be in a small degree inflamed, the liver of a colour somewhat bordering upon red, but all the other viscera in their sound and natural state.

In this case, the existence of a local organic disease was the reason why the soreness of the mouth so suddenly subsided; for the difficulty of keeping up a salivation is, undoubtedly, proportionate to this affection.

SECT. II. YELLOW FEVER IN BOSTON.

THE yellow fever, which made its appearance in 1798, had never been known as an epidemic in the town of Boston till that period.

THE first case, which was suspected to have been of this nature, presented on the 17th of June, after a long continuance of hot and dry weather. About the middle of July three young men were seized with it within three days of each other, and all died.

THESE were chiefly persons, whose daily employment led them to pass the greater part of the day in stores near the easterly shores of the town.

THROUGH the remaining part of July, and the whole of August, the atmosphere was so calm, that the smoke was seen by the inhabitants of the adjoining country constantly hovering over the town like a cloud, with scarcely the least apparent motion for near six weeks, a part of which time the heat was extreme, from 72° to 96° Fahrenheit.

THE disease continued to rage with violence in the neighbourhood of the docks and wharves at the eastern and southeastern borders of the town, and on the southerly side of Fort Hill, until about the middle of September. From that time it began to abate, and by the end of October, after rains and frost, altogether ceased.

No persons could produce any evidence of importation of the disease. There was no instance of its being communicated from those who removed

out of the sphere of its supposed origination, viz. the docks, declivity of the hill, and flats, of the shore, or places where large quantities of putrifying raw hides from the West Indies and the Cape de Verd Islands, together with spoiled beef in barrels, and pickled fish, had been stored.

The symptoms of this disease were much in the form of that described by Dr. Rush, which prevailed in Philadelphia, in 1793. The number of the sick has never been accurately estimated; but about one hundred and forty-five persons died. Most of those who were seized within the first two or three weeks died.

The bodies of several of the deceased were examined, and the liver, lungs and stomach were found to have been highly inflamed, the veins being excessively turgid with black blood; and in one instance the thorax contained a large quantity of blood extravasated from the ruptured vessels of the lungs. After these dissections, several of the practitioners in the town, convinced of the congestion under which those organs laboured, adopted a much freer use of calomel than had heretofore been practised; and the success of the method appeared to justify the means. Candour requires us, however, to mention that the greater number of recoveries in the latter part of the season, was not to be imputed, solely to this improved mode of treatment, but in a great measure to the mitigated form of the disease.

Calomel was usually prescribed, after bleeding and a purge in doses of two or three grains every

two hours, till the mouth became sore; upon which the disease invariably gave way;—in many persons, however, this could not be accomplished. In some cases of salivation, dangerous hemorrhages ensued.

E. S. was seized with common symptoms. After the usual evacuations, he commenced the use of calomel in pills, combined with about one quarter of a grain of opium. Though the symptoms were among the most violent I had ever seen, and the case was as hopeless, yet when salivation began to manifest itself, which was on the 4th day, the disorder submitted. A very copious ptyalism greatly added to the debility produced by the disease; and on the third week a very alarming hemorrhage took place from the gums.—Cinchona, red port wine, the vegetable and mineral acids, cold water, ice, astringent and styptic applications to the part, compression with sponge, sulphur, with other laxative medicines, and every possible attention that could be afforded, had very little control over the bleeding, till from mere exhaustion, after about eight or ten days continuance, it altogether ceased; and within a day or two he expired.

One other instance of dangerous hemorrhage from these parts fell under my care, but easily yielded to the remedies above mentioned.

Although many of the towns and cities of the more southern states had been visited with this terrible calamity, the town of Boston had been exempt, since the first invasion of the disease, till 1802, when it again made its appearance with all the circumstances of its former malignity.

The first person attacked with the yellow fever in Boston, in 1802, was H. K. Hall, who lived at the bottom of Summer street, near the head of Tileston's wharf.—He was taken on the 25th of July. His symptoms were of the most acute kind. He died on the 29th. The second was Hannah Fessenden, who lived in a house near the former. She was seized about the same time with Mr. H. with violent pains whilst employed in washing. She died on the 30th.

Mrs. Fessenden, her mother, living in the same house, was taken August 1st, and died on the 6th.

B. C. sister to Mrs. F., living also in the same house, was taken a few days after and died on the 10th.

Mr. Howard was seized much about the same time; was removed from his house to the hospital at Rainsford's Island, and died there.

All the other persons who were seized with this disease, lived within two hundred yards; most of them within one hundred yards of the house, in which the disease first appeared. Eleven persons are said to have died out of Mrs. Fessenden's house.

I know of no instance where it extended to the northwesterly side of High street. Of the eleven persons who were first seized, I do not know that one recovered. The whole number to whom it proved fatal, was about fifty. Many persons who visited the sick from motives of humanity, were said to have taken the disease.

I had no opportunity of seeing the earliest victims of this disorder. The following cases exhibit the

general form of the symptoms in such of the sick, as fell under my particular care. The subject of it lived in a small, double, one story wooden house, in High street, about fifty yards from Fessenden's house. In the adjoining part of it, one or more persons had died with the black vomit; one of these I had seen whilst expiring with this symptom, about the 3d or 4th day of the disease.

On the 26th of September, F. G. was seized with violent pains in his loins, legs, and after a few hours, in his head, particularly his forehead. His eyes, from the beginning, were remarkably red, his skin hot and dry, with a burning pain at the scrobiculus cordis; his pulse hard and full, but not remarkably frequent; stomach extremely irritable and incapable of retaining any thing, unless given in the smallest compass. His respiration was laborious, with every mark of violent excitement.

Fifteen grains of calomel, and twenty-five of jalap were given him, which operated favourably. On the 27th, all the symptoms were aggravated with indescribable agony, he had slept none through the night, and became delirious. Eighteen ounces of blood were then taken from his arm, and some relief was procured. The pulse was, in some degree, softened. The blood, on standing, exhibited a buff. A pill, consisting of one grain of calomel, conjoined with opium, was given every hour, night and day, whilst the stomach continued irritable.

28th. Distress somewhat mitigated. As the calomel was retained by the stomach, and discovered no

tendency to pass off by the bowels, it was continued without the opium.

29th. Pain less violent; a considerable degree of diaphoresis in the course of the night; pulse still somewhat hard, but less frequent. Pills continued.

30th. As yesterday. His skin at night assumed a dingy cast. The pills were given, not exactly every hour, but so as to get down the twenty-four grains in the day and night. Very little or no soreness of the mouth appeared.

October 1st. Pulse much sunk, now exhibiting, but not before, the character described by Dr. Rush and others, as particularly connected with this disorder. On slight pressure with the finger upon the artery, the pulsation ceased. At night, a small degree of intermission and coldness in the extremities, with clammy moisture, ensued.

2d. Delirium, black vomit, with no further appearance of the action of the mercury on the mouth, and a total loss of circulation in the radial artery. Disorder terminated in death, on the latter part of the day.

Second. On the 2d of October, I was called to visit a lad, aged seventeen, in the family of Mr. Arthur Fessenden, in High-street. He had been in daily employment in a store near the house of Mr. Fessenden, first mentioned. He had the usual symptoms, with a pulse hard, more frequent, and less full, than F. G. He was ordered a brisk cathartic of jalap and calomel, which operated moderately, but gave

him much relief; in consequence of which he slept well at night. The skin was of a yellowish hue.

3d. The evacuations from the bowels not having been so complete as had been wished, the jalap and calomel were repeated with better success than yesterday. The pulse continuing frequent, hard, and small, he was ordered three grains of calomel every three hours.

4th. Symptoms somewhat abated; pulse slower; soreness of the mouth appeared at night.

5th. A copious ptyalism; all the symptoms much abated; pains almost left him.

6th. Pulse smaller, but less hard; extreme debility. A hemorrhage from the gums took place, and he lost about half pound of blood in twenty-four hours.

7th. Hemorrhage continued to give much trouble to himself and physician. Cold water, the bark, and elix. vitriol, internally; and topically, allum, vitriol, cerul. and a variety of other styptic powders were prescribed with little effect. The bleeding continued for several days, and greatly reduced him; but, by large use of the above remedies, with port wine and suitable support, he was enabled to surmount it, and became gradually convalescent; but did not recover his strength under many weeks.

Third. Mrs. W. was visited on the 7th of October; was in the second stage of the disease; had a quick, irregular, sinking pulse, with coldness of the extremities, a clammy sweat upon the whole surface, with vomiting of dark matter, and every signal of approaching dissolution. Calomel was used imme-

diately, in doses of three grains, every three hours. At first it passed the bowels; but, being conjoined with opium, was afterwards retained. A slight degree of soreness took place in the mouth within thirty-four hours. As the soreness advanced, her pulse became fuller, more distinct, and connected; a genial warmth returned upon the surface, with a natural humidity of the body and limbs; and the pills were omitted. No ptyalism took place; bark and wine were freely administered; and by the 20th she had entirely recovered.

Fourth. Mrs. M. was seized on the 6th of September, with violent pains, accompanied with incessant vomiting, which prevented her retaining the calomel or any other medicine. A blister was applied to the stomach without the least effect. Her pulse sunk on the second day; her extremities became cold, and on the 10th she died.

Fifth. M. R's. wife was seized on the 6th; was, when visited, in the second stage of the disease, with symptoms very similar to Mrs. W's.; but by no means in so alarming a degree. She pursued the same course, and recovered slowly.

The source of this disease was not satisfactorily accounted for. Discordant testimonies and contradictory opinions were, as usual, advanced upon this occasion.—Some alleged that it was from contagion, imported in the schooner Fair Attempt from the West Indies; others contended that it arose from filth, consisting of putrid animal and vegetable substances, collected near the wharves or in a cellar in the neighbourhood of the place where it commenced.

WHILST mercurials have been considered as particularly applicable to diseases of *contagion*, in fevers of *local origin* their efficacy has been denied.

As this is the second time the yellow fever has been known in this town, I shall on this occasion make some inquiries into the causes from which it originated, and endeavour, as great doubts have been entertained on the subject, to ascertain whether importation or local impurities are mostly to be guarded against in our police regulations.

THE schooner Fair Attempt arrived at the quarantine ground on the 16th of June, in twenty days from Port au Prince.

BEFORE her departure, Mr. S. B. had been taken sick on shore; came on board and lodged one night, and then went on shore again.

P. B. WAS seized seven or eight days before the vessel arrived, and recovered.

NO other person had been sick, till she had been out about fifteen days, excepting Capt. Crawford, who had been confined with the rheumatism.

J. N. BECAME sick after the schooner came on soundings. He died on board with black vomit.

P. S. WAS taken sick the day before her arrival; and died on the third day from his seizure.

DURING quarantine, according to the report of Dr. Welsh, the port physician, the utmost care was taken to have every part of the vessel thoroughly cleansed; every source of infection was supposed by him to have been searched out and expelled.

ON the 4th of July she was released from her quarantine, and came up to town, to the head of Tileston's wharf.

A NUMBER of articles, such as curious shells, corals and sea-fans were brought in the schooner. Mr. H. K. Hall went into the hold of the vessel for some of these articles. It has been stated, that some of the clothing on board had been delivered to Hannah Fessenden and Nancy Smith to wash, which they accordingly did; and, that two persons, Mr. C. and Mr. D. (to whom some other articles had been committed, and by whom they were buried on the 10th of August,) complained of a very offensive smell from them. And a very intelligent gentleman, to whom I am indebted for much of my information on the subject, heard one of them say, two days before the seizure of Hannah Fessenden, that he had taken those clothes which were left with her, and buried them. But Mr. Anderson, the mate, informed me, that he had been a boarder at Fessenden's house before the voyage, and a lodger there after the arrival of the shooner; that, to his certain knowledge, Hannah did not wash any clothes that had been on board; that all those which were on board, were washed before, excepting what were contained in a chest, which was placed in a store in another place, and which was not opened till after the fever was over; and, that the clothes of those who died, were all thrown overboard. The clothes found at Fessenden's, and buried by Mr. Davenport, were Mr. Anderson's own clothes, some of them new, which had been left by him before he went the voyage, and had never been used out of Boston.

It appears, that Mr. Hall, the first person seized in the town, was taken sick not till twenty-one days after the schooner's arrival at the wharf. Mr. D. was seized about twenty days after he buried the clothes. Kendall was taken immediately after conveying down Hall's bed from the top of the house. H. Fessenden was seized in the act of washing some clothes.

Difficulties on the hypothesis of importation readily present themselves.

1. Contagious disease, it is believed, has not been known to exert its influence so slowly on the habit, as to produce no tokens of indisposition within twenty days from infection, as must have been the case if D. took it when he buried the clothes.

2. But supposing this to be possible, under certain circumstances, yet, nature is too uniform in her operations to admit of so great a disparity in this respect, as the statement presumes. The infection in R. and Mrs. F. being supposed to have produced an almost instantaneous operation.

The flats in the vicinity, on which a very hot sun had been for some time exerting a very powerful influence, and promoting putrefaction in the large quantity of dead vegetable and animal matter which they retained, will by some also be believed to have originated the disease.

The circumstance of its prevalence in the same neighbourhood in 1798, when the disease, I think, was proved satisfactorily to have been indigenous, is favourable to the hypothesis of local generation. A solution of the question, whether the disease was

contagious or not, would go far towards deciding this important inquiry.

Mr. J. Tilestone, jun. who had been seized with the fever in Boston, was removed to Dorchester neck, where he died on the 25th of September.

I am informed, that a Mr. Loring, belonging to Hingham, visited him while there, and though he had never been in Boston since the commencement of the fever, he was shortly after taken sick with it; but recovered.

In opposition to the inference naturally to be drawn from this fact, it is to be observed, that no case of the kind appears to have taken place in Boston. There were many instances, wherein persons were removed to other quarters of the town; and, as was remarked in 1798, the attendants on the sick, if not exposed to the same original sources of atmospheric influence, were never infected.

I visited Mrs. B., who, as noted above, was removed to a house at the foot of Broomfield's lane; found her labouring under all the symptoms of the most concentrated form of yellow fever; and saw her expiring under every mark of its most aggravated malignity. The house was filled with numbers of people, who had no suspicion of the nature of her complaint, till within a few hours of her death; and yet, not a person was infected by her.

Upon the whole, it would be but candid to observe, that the circumstances of the disease at this period, afford more plausible support to the belief of importation, than any other that has occurred within my observation. But importation of a disease, which

is incapable of propagation, is so unsupported by any reasons founded on study, that the strongest evidence only would justify us in subscribing to it.

No physicians were attacked with the disease, and very few of the nurses.—I knew several that attended through every stage of the disease, performing all the offices of humanity and affection, without the smallest degree of complaint.

That a disease of this kind may sometimes be taken by visitors to a newly arrived vessel, especially from the hold, cannot be doubted. Epidemic disease must originate somewhere. Extreme heat, confinement of air, impurities, and a variety of other causes, may generate it any where. What place is more likely to be the seat of these causes, than the hold of a ship long closed, exposed to extreme heat through a long voyage, with, perhaps, much impure matter for the heat to operate upon? The visitor on board will be more likely to be infected than one of the crew; for it is an established fact, that persons who are exposed to the gradually increasing action of any noxious cause, by a certain accommodating principle of the animal œconomy, attain a habit of submission to a new mode of action from the morbid stimulus, and escape without injury, whilst others are speedily destroyed by its influence. Strangers in the tropical climates are, commonly, almost the only victims to their most malignant fevers.

Yellow fever, I have no doubt, has often originated in this way; but in the same way it may, and I believe often does, originate also on shore; wherever certain combined causes, such as heat, an extremely dry

air, and many other means, which are perhaps too abstruse and occult for human investigation, are brought into action.

Dr. Cullen admits that in some circumstances, contagion of a different nature from that which is permanent and constant, is occasionally generated.

But this source of fever is a very different thing, from what is usually implied in the term importation, which is commonly used to signify the introduction of a specific matter of contagion from a foreign place, where it had existed in the form of an altered secretion from the human body.

The confounding of these two ideas, it is apprehended, has been the source of much disputation and obscurity, in disquisitions on the subject. It is perhaps even possible, that an infection derived from the first source may be in a degree contagious; and that others, than those who have had direct access to it, may become diseased.*

* Not aware of the limited extent of contagion in general, and especially of that of yellow fever, if it possessed it, in the year 1798, whilst exposed to extreme fatigue and breathing almost incessantly an atmosphere highly charged with noxious effluvia from the bodies of the sick and dying, I had for several weeks whilst the fever was at its height taken a grain of calomel every day. This quantity was sufficient to keep up a constant soreness of the gums. I never felt better in my life than whilst under the action of this gentle stimulus, and never had the slightest complaint during the epidemic.

The prophylactic power of the mercury is, I think, indisputable.

PART IV.

SECT. I. SMALL POX.

The custom of giving mercury in the small pox probably originated from certain circumstances of analogy between the known effects of this medicine on the salivary glands, and the mode in which nature has been observed to promote recovery in this disease: it has been generally found, in fortunate cases, to terminate by spitting. Dr. Cleghorn has exhibited a detail of cases, in which the cure was attended by spontaneous salivation.*

This fact, which had been early noticed by writers on the subject, naturally suggested the experiment of mercurial medicines, by way of co-operation with the efforts of nature to produce a crisis in this form.†

Among the early advocates of this practice was the illustrious Boerhaave, who with a kind of prophetic sagacity, conjectured, that mercury and antimony would be adopted as antidotes to the virus of small-pox. Van Swieten, his commentator, observes, that

* Epidemic diseases of Minorca, p. 295.

† Huxham, Mead, Cullen, and Tissot, encouraged salivation in small-pox. Hoffman observes, that such medicines as attenuate saliva and promote expectoration, are of advantage in malignant fevers, for scarcely any die who spit freely.

several persons had availed themselves of this hint, and given calomel with success; and Dr. Huxham, in 1724, suggested the expediency of a similar method.

From having been supposed serviceable in natural small-pox, it readily passed into use as a preparative for inoculation. Soon after, the American and European physicians thought proper to adopt it; and to no one was Europe more indebted for information on the subject, than Baron Dimsdale, who has laid down the course which he pursued himself, and which he strenuously recommended to others. The form, in which he used the medicine, was that of calomel; and he combined it with tartarized antimony, in the proportion of eight grains of the former to one-eighth of a grain of the latter, together with some testaceous powder equal in weight to that of the calomel.* A cathartic of jalap and calomel was given several times during the preparation.

In case of inoculating a woman with a child at the breast, the mother was ordered to take three doses of the above powder, consisting of two portions equally divided into that number; and in the intervals between them, the child had from one and an half to three grains of the same, followed by a gentle purgative the next morning.

In 1721, at the instance of Dr. C. Mather, one of the principal ministers of Boston, the inoculation

* This was given in different doses, at intervals of one or two days, and was continued eight or ten days previous to inoculation.

for the small pox was introduced into New England by Dr. Boylston,* and was at about the same time adopted by the physicians of Great Britain.

It does not, however, appear, that the use of mercury was in either country much resorted to in the early periods of this practice; but was afterwards adopted from its supposed efficacy first experienced in natural small-pox.

The earliest traces of it may, perhaps, be found in the forementioned dissertation on inoculation, published by Dr. Benjamin Gale, of Connecticut, in New England, wherein he says, it was first used in the American colonies in 1745; and observes, in support of its utility, that, whereas before this period one of a *hundred* died; by inoculation, only one of *eight hundred* died afterwards.

Dr. A. Thompson, June 26th, 1760, published, in Pennsylvania, his treatment of small-pox by inoculation, by which it appears to have consisted principally of calomel, from four to ten grains for an adult, and from one to three for a child, made into a pill, and given three times after inoculation, each dose followed by a purge.

At whatever period this practice was first introduced into New England, it is certain, that great confidence was placed in it; but it does not appear to have been generally given with any intention of producing

* Of five thousand eight hundred and eighty-nine who took it in the natural way in Boston at this period, eight hundred and forty-four died. Hutchinson's Hist. Massachusetts, p. 249.

salivation; and was rarely used in quantities sufficient, unless by accident, in any degree to affect the mouth. Four or five pills only of a grain of calomel were given in the course of the preparation; and, though this method was generally attended with two or three purges, and a spare diet, yet the principal reliance was upon the calomel, which was considered as the indispensable requisite for procuring a favourable species of the disorder under inoculation, and of mitigating the violence of the disease when taken in the natural way.

It would have been considered as presumptuous, and next to the crime of suicide, in any one to have exposed himself to the infection without this, as it was supposed to be an all powerful antidote to the variolous poison.

In 1752, the small-pox spread through the town of Boston, when the number of inhabitants amounted to 15,734. Of this number 5,544 had the disease in the natural way, and 514 died. The whole number inoculated was 2,113, of whom thirty died; and, as I do not find that mercury was at this time used in the disease, it may form a subject of comparison with the success which attended the subsequent practice.

In 1761, when it became epidemic in this town, it appears that mercury was considered as a proper preparative for inoculation.

In 1764, when it was again prevalent, it constituted, as was supposed, a necessary part of the process; and the success was said to have been un-

commonly great, in consequence of the treatment in the new method.

When it prevailed in the army and elsewhere in 1776, 1778, and 1780, moderate quantities were given to the citizen, whilst much larger were thought necessary for the soldier.

The efficacy of a medicine, on which so much stress has been laid by the majority of practitioners, in inoculation for small-pox, ought not to be admitted without some examination into its merits.

If it had appeared, that the success of the modern treatment was dependent, rather on what had heretofore been considered as the auxiliary means, than on the supposed specific, it would have greatly contributed towards reducing the preparation to a more simple form, and rendering it more safe and easy to the patient; and, till the prejudices still subsisting against the preventive power of the vaccine disease shall be extinct, it may yet be of some consequence to ascertain the point.

Many circumstances might be adduced to disprove the specific action of mercury in this disease.

The Suttonian inoculation was first practised in England in 1757. It consisted in the cooling regimen, probably founded on the principles of the immortal Sydenham, who had considered the small-pox as an inflammatory disease, and had recommended cool air and antiphlogistic diet.

Though mercury was certainly used in this method; yet there is no evidence, that it was prescribed with an intention of producing what is called

an alterative effect, but only as a cathartic, in combination with other medicines of that class.

The success therefore undoubtedly depended in a great measure on the antiphlogistic process with which it was accompanied.

In Jamaica, according to the testimony of their physicians, mercury is much more active than in colder climates, 6 grains of calomel often producing salivation. But it is a fact, that in 1768 the blacks in that island were sometimes inoculated without any mercurial preparation, and for the most part did well.

In 1783, an inoculating hospital was established at Point Shirley, in the neighbourhood of this town. A considerable number passed through the disease at that place, and with the usual success, although this medicine was used in much smaller quantities than had before been in fashion, the children, especially, having taken scarcely any.

The last time it became epidemic in Boston, in 1792, it was prescribed rather for form's sake, than from any reliance on its specific action; it was often entirely dispensed with in young subjects; or when given, intended rather as an anthelmintic, than alterative. In this view only it was serviceable, as by destroying worms it sometimes prevented those alarming symptoms, which often occur in the course of the small pox from those animals.

Nine thousand one hundred and fifty-two persons passed through it at this period. Subjects of all ages and conditions were submitted to the operation,

and one hundred and sixty-five died, chiefly children.*

The mortality, if greater than usual, is justly assignable to a variety of causes which had not before existed in so formidable a degree.

1. The number of subjects was much greater than usual.

2. These were chiefly children of the poor.—Those, whose circumstances admitted, had generally sent their children to the neighbouring hospitals for inoculation. Those which remained were, therefore, generally in low circumstances. Whole families were often crowded together in single rooms, where fires were constantly kept up for the purposes of cooking, and the patients were destitute of most of the comforts of life, with very little personal attendance, from the disproportion of nurses to the numbers of the sick.

3. The whole town was inoculated in the course of three days, owing to the infatuation of the inhabitants with respect to the danger of infection, founded on a preposterous notion, that so soon as any person had been inoculated, the whole neighbourhood were endangered.

The consequences which ensued constituted a scene of confusion and wretchedness, which no one, who was a witness to it, could have viewed without horror and commiseration.

* At the same period two hundred and thirty-two had it in the natural way, thirty-three of whom died.

The population of the town at this time amounted to about 20,000.

It is to be hoped, for the cause of humanity, that the inhabitants of Boston will never again experience this calamity; as they have it now in their power, by embracing the means which heaven as put into their hands in the vaccine inoculation, to secure themselves forever from its desolating ravages.

SECT. II. MEASLES.

The measles about once in eight or nine years have usually visited Boston, and almost invariably, when they have once appeared, have prevailed till they passed through the town.

Some analogies in the disease would lead us to suspect, that mercury might be advantageous in the treatment of them. On inquiry, I have ascertained, that this practice has been adopted by one of the most experienced and respectable physicians in this commonwealth for many years past.

In answer to some queries, which I had taken the liberty to make to Dr. Holyoke of Salem, he informs me, that in the early stages of measles he has often made use of calomel, and has been convinced of its efficacy in correcting the secretions from the glands of the nares and fauces, which are so apt to keep up a troublesome cough and sneezing.

In the pneumonic and anginous symptoms, which so frequently accompany them, and which are perhaps the most troublesome and dangerous attendants of

the disease, he has great confidence in the exhibition of mercury, particularly in emetics of turpeth mineral, (yellow sub-sulphate of mercury). In young subjects he gave from 1 to 3 grains, after bleeding, if the case called for it, and would admit of it; and he found it to be one of the most efficacious medicines that could be employed for the purpose of dislodging the viscid matter with which the glands are apt to be surcharged, and of promoting expectoration. In the measles of 1783 he adopted this method, and the result was answerable to his expectations.

In elucidation of Mr. Hunter's theory respecting the prevalence of two constitutional diseases at one and the same time, the following case may be worthy of record.

I vaccinated a child about five years old. On the third day the arm exhibited the usual appearances of infection in the most favourable form. From this period to the fifth the incision became brighter. On the same day, the child who had for a day or two had a slight cough, complained of soreness of the throat and inflamed eyes; the redness of the incision began to subside in the same proportion as these symptoms increased, till at length it faded, as in cases where the system had proved insusceptible of the infection.

The measles then assumed the command of the system, and ran on through all their stages, without appearing to be influenced by any other operation, till they turned at the usual period, when the pustule began to resume its former redness, and thence regularly

advanced and terminated, having been protracted to a period several days beyond its common course.

This is a distinct instance of one disease taking full possession of the habit, and suspending the powers of another, without entirely subduing them.

This fact may furnish some limitations and modifications to the doctrine respecting simultaneous morbid actions, depending on the circumstance of specific contagion.

The diagnostics of measles in the access of the disorder, are often important in regard to the treatment to be adopted.

The common symptoms are so well known as to require no particular detail; but it may be of use to observe, that the eruption is almost invariably discoverable upon the velum palati, or roof of the mouth, sometime earlier than on the external surface of the body.

SECT. III. THROAT DISTEMPER.

The cynanche maligna, putrid sore throat, or throat distemper, as it has been called, made its appearance at Boston in the month of September, 1735, after a very cold and wet summer. It commenced in the May preceding at Kingston, in New Hampshire, an inland town, situated on a low plain.

The first person seized with it was a child, who died in three days. About a week after, three children in one family, at the distance of four miles from the first, were successively attacked, and died on the

third day. It continued spreading in that town, and gradually made its way, in the course of the summer and following winter, to Boston and many of the neighbouring towns, and did not cease till the end of the next summer. The whole of its extent was from Maine to Carolina. The subjects were usually children.

The symptoms, with which it was attended, were a pain in the head and back, soreness of the throat, and swelling in the glands of the neck; pulse frequent, but small and soft; the tonsils somewhat inflamed at first; the velum pendulum palati and uvula in the same condition, with whitish or ash coloured spots on their surfaces. Dr. Holyoke informs me, that, when it did *not* prove fatal on the second or third day, which it frequently *did*, it was almost universally attended with great erosion and excoriation about the fauces, inside of the mouth, lips and chin, and wherever the saliva was lodged; and these parts became covered with a white aphthous slough, painful and corrosive; even the extremities of the fingers, when they were besmeared with the saliva, were corroded. A sister of the doctor, about twelve months old, as he well remembers, lost the nails of the fingers from the acrid quality of the matter.

In these cases, calomel, given frequently and liberally (and young children, he observes, for the most part bear it remarkably well), was the only medicine which could be depended upon to stop the progress of the erosion.

A REMARK, offered by the doctor, that the cynanche has of late years appeared in a form somewhat different, in which the debility is too great to admit of a free use of mercury, is exactly correspondent with my own observation on the disease, as it appeared here within a few years past.

BUT it is further observed, when the angina is extreme, unless the prostration of strength is very great, an emetic of turpeth mineral given at, or soon after the attack, is frequently attended with the happiest effect, the stomach, fauces, and breast, being greatly relieved by the dislodgment of vast quantities of viscid phlegm. All copious evacuations were generally hurtful, especially bleeding.

THAT the disease in 1735 was not contagious, was the opinion of the physicians of that day. It had been supposed on its first appearance in Boston, to be nothing more than a cold; but when its mortality in New Hampshire was known, it spread the utmost degree of terror through the town and neighbourhood.

THE house, in which the first person was seized, was shut up; but it was soon discovered, that the persons, particularly exposed, escaped infection, whilst others, at a distance, in every quarter, who had no communication with the sick, were attacked by it; the attendants on the sick did not take it, and in no instance was it conveyed by the clothes to the families of those who had visited them, but was supposed to proceed from an impure atmosphere.

THE number of those, who had the distemper in Boston, was four thousand, of whom, one hundred

and fourteen died, which is one in thirty-five. The whole number of inhabitants was, at that time, estimated at sixteen thousand. In the whole state, about one thousand persons fell victims to this disease.

In 1754 and 1755, it again made its appearance in some parts of Massachusetts and New Hampshire.

In 1784, it also spread through most of the towns in New England, since which time, it has never been generally prevalent in any considerable part of this commonwealth.

Sporadic cases have indeed frequently been seen in Boston; but, though sometimes extremely malignant, they have never become general.

In the month of January, 1802, some instances of extreme virulence occurred, and began to produce an alarm in the town; but a more specific epidemic, the measles, having made their appearance the latter end of January, the inhabitants were happily relieved from their anxiety, and the throat distemper was completely overpowered and subdued by this welcome substitute.

The first appearance of this disorder was about the latter end of December, 1801. The symptoms, in the beginning, were remarkable paleness of countenance, extreme weakness, pain in the limbs, slight soreness of the throat, a white tongue. On examining the fauces in this stage, the tonsils were not observed to be remarkably inflamed or tumefied, not nearly so much as in common sore throat from cold. On the second day an efflorescence usually commenced on the arms, neck, and breast, which gradually extended over the whole surface without any relief to

the patient. In some cases, the respiration was laborious. One instance assumed the form of a common cynanche tonsillaris, the breathing having been, from the beginning, of that hoarse stridulous kind, which often attends the most threatening species of this disease. The glands of the neck were much swollen. On the third or fourth day the efflorescence, in the more violent cases, assumed a deeper shade of red, bordering on purple; and in proportion to the cutaneous eruption was the danger of the disease.

At this period an aphthous coating was discovered on the velum of the palate, and on the tonsils. Gangrenous sloughs were cast off from these parts, so that the action of swallowing was much interrupted; a regurgitation through the nose ensued, whenever the attempt to get any thing into the œsophagus was made. On the fifth day the patient usually either died, or exhibited marks of amendment. In one case, however, the disease was protracted to the third week, and proved fatal at last.

In one instance the first stage had passed over, before any apprehensions of danger had been excited; and within twenty-four hours from the seizure, the extremities became cold, the pulse sunk, and was either extremely irregular or intermittent; petechial spots made their appearance over the whole body; and without much complaint in the throat, the patient died within sixty hours of the attack. Another case assumed nearly the same form, but in a less violent degree, and terminated in the same manner on the fifth day.

The prostration of strength was so remarkable from the beginning, the pulse so extremely frequent and small, and the tendency to putrefaction so obvious, that it was judged necessary to commence immediately with tonic and antiseptic medicines, sometimes however cleansing the stomach and fauces with an emetic of ipecac. Bark and wine were then prescribed in as large quantities as could be conveyed into the stomach, with elixir of vitriol (sulphuric acid) diluted with water; and in case of aphthæ or erosions of the tonsils and uvula, great advantage was derived from diluted muriatic acid applied with a small mop or sponge to the parts affected.

For the swellings of the parotid glands, nothing was so efficacious as the application of cold water, or vinegar and water, by cloths kept constantly wet with these fluids. The drinking of cold water was in some instances attended with the happiest effect. One patient, a child of one of my most intimate friends, recovered from the most desperate state of the disease by drinking, in the course of two or three days, several pails full, discharging most of it immediately from the stomach.

Blisters were sometimes used to the neck, and behind the ears, but never, so far as I could discover, with any advantage; on the contrary, by preventing or rendering inconvenient the application of cold water, they were decidedly injurious. The subjects were chiefly children, and adult females of weak and slender constitutions; and it was remarkable,

that the most malignant instances, were those of two young ladies, who died at an early period of the complaint.

MERCURY was not used in this disease for the purpose of affecting the glands, or of acting upon the system at large, but only in doses of three or four grains, combined with some auxiliary article, as a mild cathartic.

THE prevalence of what was called a putrid diathesis, and the marks of debility so predominant in the progress of the disorder, prevented practitioners from using this medicine, notwithstanding the advantages that had attended it in most of the former periods of its prevalence in the New England States.

IN the year 1773 it had been generally supposed serviceable; but the character of the disease appeared at that time to be different. The use of mercury in putrid diathesis was at least hypothetical; and indeed, strong prepossessions were entertained against it.* At that time an emetic, or a cathartic, if it operated briskly, was sure to be followed by prostration of strength and aggravation of symptoms.

THIS disorder had some appearance of being contagious. Whenever it attacked an individual of a

* Dr. W. Baylies observes that in throat distemper, (ulcerated sore throat) which prevailed at Dighton in 1785 and 6, mercurials were not found to be attended with the same advantage as when it appeared there fourteen years before. Communication to Mass. Med. Society, Number 1, page 45.

Dr. Rush used calomel in small doses, in all stages of scarlatina, anginosa, which appeared at Philadelphia, in 1783 and and 4, sometimes added a few grains of calomel to his gargles.

family, most of the children, and some of the adults were, within about six or seven days, seized with the complaint, unless immediately removed from the atmosphere of the sick.

It is not certain that any were infected by inhabiting different parts of the same house, provided they did not enter into the chambers of the sick; but the difficulty of constantly guarding against the communication in large families induced the physicians to recommend a timely removal; and in every instance where this was complied with, the infection was evaded. In my own family the distemper was discovered in the person of one of my children; and, having been a witness to the horrors attendant on its footsteps in the family of a friend, and apprized of the apparent activity of the contagion, I immediately separated the rest of the family by a removal into the country, and they avoided the disease.

The marks of this distemper, by which it was distinguishable from inflammatory sore throat, were the following:

The subjects of the first were generally infirm persons, especially females; of the latter the healthy and athletic.

The former disease, I believe, originated from contagion; the latter is known to arise from cold, and is sporadic.

The former was a constitutional disorder, was attended with vomiting or purging, acute pain in the back of the head, erysipelatous redness of the fauces and a scarlet eruption on the skin with quick and weak pulse; the latter was chiefly local or con-

fined to the throat with full and hard pulse and symptomatic fever.

The former became ulcerous with sloughs of a cineritious colour; the latter frequently terminated in suppuration.

SECT IV. CYNANCHE TRACHEALIS.

The croup, or cynanche trachealis has, I believe, been generally acknowledged to be an inflammatory disease. The antiphlogistic method of cure was, therefore, the usual mode of treatment; and since the admission of mercury into that class of medicine it has constituted a part of it.

Mr. James Anderson, of Edinburgh, some years since communicated to Dr. Duncan a number of cases, in which calomel (submurias hydrargyri) had been useful; and he expected it would prove as beneficial in England, as it had long since been represented to be in America; and by subsequent trials was confirmed in his opinion, that it ought to be considered as an efficacious medicine in cynanche trachealis.

In his later practice he has given eighteen grains in twenty-four hours to children three years old, in doses of two or three grains every hour, and in one more urgent case of a child four years old, forty-five grains within fifty hours. In no instance had it produced griping or hypercatharsis; and of seven children, to whom he had ordered it within two months, not one died.

He observed, that the mouth was never rendered sore, though moistened with viscid mucus.

Dr. John Archer, of Maryland, used mercury in the advanced stage of the disease freely and frequently; and thought that it assisted the stimulant quality of seneka in separating the membrane.

Dr. Rush, supposing the croup to be divisible into two species, denominates one spasmodic, the other humid; the latter only being attended with the lymphatic concretion which generates the membrane lining the trachea and suffocating the patient. In this he used calomel, and placed his dependence principally upon this remedy, prescribing it in a large dose as soon as the disease discovered itself, and smaller doses every day afterwards, till the symptoms disappeared.*

Mercurial medicines have been given in Boston, in this disease, in doses of six or eight grains at intervals of eighteen or twenty-four hours, and with great advantage; but the violence of its symptoms, and the rapidity of its progress is usually too great to admit of any constitutional change by the operation of this medicine.—That small doses, given with a view to change the habit, have comparatively very little effect upon children much under the age of puberty, is a fact, of which, from particular observation, I am fully convinced.—I have never known an infant to be salivated, notwithstanding I have given, in some instances, large quantities with this view.

* He observes, that the bark is scarcely a more certain remedy for intermittents than calomel, when thus administered in this species of cynanche.

Perhaps the mucus, with which the primæ viæ are so apt to be lined at this age, may prevent the medicine from entering the lacteals. And I have reason to believe that its action on the intestines is also proportionably weakened by this, or some other cause productive of the same effect, as I have generally found it adviseable to combine with it some more active cathartic to insure its operation.

SECT. V. HYDROCEPHALUS INTERNUS.

This disease has lately been concluded to belong to the class of pyrexiæ; and there is, perhaps, no disorder whatever, in which practitioners are so much agreed with respect to its treatment.

Calomel has for a long time been thought to be almost the only medicine affording any prospect of success. Whether it has ever effected a cure in real hydrocephalus internus, may, perhaps, without imputation of scepticism, be doubted. It is believed by some that the brain has no absorbent vessels. If this could be proved to be the case, it would readily account for the incurable nature of the disease.

Either physicians were formerly less acquainted with its diagnosis, or it has become more common of late years, and has accordingly afforded opportunities for more frequent dissection. Of children who were supposed to have died with it, I have opened a considerable number, and never met with any fairly marked instance in which the ventricles did not con-

tain a quantity of water, sufficient, as I should suppose, by its pressure to impair the functions of the brain. These cases had been attended with a full and somewhat hard pulse in the beginning; a pain in the head, with a constant effort to keep the hand upon the affected part: and, as the disease advanced, a dilated pupil, rolling of the eyes, slower pulse and respiration, obstinate constipation of the bowels, and swelling of the extremities.

In a case of a child aged six, one grain and an half of calomel was given three times a day for about twenty days without any affection of the mouth; the symptoms, excepting the slow pulse, continuing through all the stages of the complaint to proceed as above described. The coma and insensibility became such, that scarcely any signs of vitality were discoverable for eight or ten days preceding his death, which took place at the end of three weeks.

The head was opened, and from the ventricles of the brain was extracted a quantity of water amounting to about ten ounces. This volume of fluid occupied so much space in the cranium, as to have borne a considerable proportion to the whole cavity. It had not the effect of distending the cranium at the sutures, which were not yet closed.

In one instance, where the symptoms were such as to correspond very exactly with the characteristics of the disease, the patient recovered, after having taken a large quantity of calomel; but whether in consequence of the medicine, or whether the disease was of a different character, is doubtful; but it may be remarked that no worms were discharged.

As so large a portion of the cavity of the cranium was found destitute of brain, the fact strongly militates against the opinion that the brain is destitute of absorbents; for a portion of its substance must have been absorbed. If mercury therefore promotes absorption, it must be well adapted to the cure of this disease.

SECT. VI. PNEUMONIA AND PLEURISY.

In pleurisy and peripneumony, mercury has been freely used; and its efficacy in promoting expectoration, one of the principal indications of cure, is supported by the testimony of the generality of its advocates.

Whether there is any natural connection between the process of salivation and expectoration, it may be difficult to determine. The nature of the parts concerned in those actions does not seem to favour the hypothesis, as there is no very great similarity between the structure of the lungs, whence expectoration proceeds, and that of the glands, which are the source of the saliva.

Hippocrates had noticed, that the natural termination of this disease was, principally, by the expectoration of mucus; and from him to Huxham the encouragement of this discharge was made a primary indication in the cure of it.

The more modern physicians have adopted the practice; and the means, which they have made use

of, had this in view, as the ultimate object, through every stage of the disease.*

Pleurisies and peripneumonies are said to be most common in middle latitudes. In Minorca they are so frequent, as to constitute the greater proportion of their winter complaints. As the latitude of this island differs but a few degrees from our own, it might be expected, that there would be some resemblance in the diseases; and it is accordingly observved, that peripneumonies and pleurisies are the common fevers that prevailed during the latter part of winter and the beginning of spring in both.

The symptoms attending are, usually, in the commencement, chills followed by stitches in the side, commonly in the right; the pulse full,† hard and

* Dr. Fordyce observed, that an effort is generally made by nature to effect this discharge on the third day, and that in general, it gave the greatest relief when it began *early*, was not hard and difficult, and when it was of a good colour, with streaks of blood in the matter, as it eased the pains and generally terminated the disorder.

† It is sometimes extremely difficult to determine to what degree the pleura costalis, and that extension of it which invests the lungs, are affected in these two complaints. It is true the pulse is generally hard when the former is most inflamed, but not invariably so. Dr. Cullen doubts whether they can easily be distinguished during life, but nearly the same method of treatment applies to both.

Recentiores autem ex sectione cadaverum didicerunt, veteres de sede, ideoque de differentia horum morborum saepe falso statuisse, et quem in pleura costali sedem habere veteres putabant, saepius in pleura pulmonem investiente situm fuisse invenerunt anatomici recentiores——inter illos morbos, utcunque aliquando distinctos, limites accuratos plurumque non ponendos esse.

Cullen's Nosology.

quick, beating from eighty to one hundred in a minute; extreme heat of the body, from one hundred to one hundred and four degrees of Fahrenheit's thermometer. The blood drawn from the arm generally exhibits a buffy appearance, but this depends on such trifling circumstances, that it ought not to be taken as an indication in the disease. It is well known that blood which coagulates speedily never exhibits this appearance; and therefore, when, instead of being drawn off in a full stream, it is suffered to run down the arm, it will usually coagulate without a buff; whereas it might otherwise have assumed a very firm, crusty appearance; for a quantity of the same mass might, if retained longer in a state of fluidity, have admitted of the subsiding of the red globules, from their specific gravity, towards the bottom of the vessel, and the upper part of the coagulum might have been formed of the lymph alone.*

Dissections of persons who had been supposed to have died of pleurisy almost always demonstrated the proximate cause to have been seated in the lungs. In general I have found this organ to be in a state denoting a very high degree of inflammation; the surface being livid, and the substance exceedingly dense, nearly resembling that of the liver.—The vesicles were filled with a semipurulent matter. The pleura was but little affected. The surfaces both of the lungs and of the pleura were covered with a

* The blood of a salivated person usually coagulates with a buff.

lymphatic membrane, especially near the sternum. In one instance the pericardium was apparently wanting, the heart appearing as if suspended loose in the cavity of the thorax, excepting its adhesion on the right side to the mediastinum.

On farther examination it was discovered, that the sac had completely adhered to the surface of the heart; and the cavity, in which that organ had been contained, was accordingly obliterated, the pericardium forming its exterior coat. An effusion of serous fluids had taken place in the interlobular spaces of the lungs, and a general extravasation was evidently discoverable throughout the substance.* The right side is found more frequently diseased than the left.

Upon the whole, it appears that the disease called pleurisy is often an inflammation of the membrane of the lungs; and that though the pain of the side is sometimes very considerable, whence it may be concluded, that the pleura is in a degree inflamed; yet it is probable, as well from the circumstance of the abatement of the pain which often takes place before any considerable mitigation of the most threatening symptoms (such as difficult respiration and

* Morgagni de Sedibus Morborum gives 50 cases of pneumonia, 10 of which exhibited inflammation and induration of the lungs, 12 or 14 of the various gradations of effusion from bloody serum to perfect pus. The residue were chiefly cases wherein empyema had taken place; two or three bloody extravasations within the thorax; and four progressive stages of gangrene.

collection of mucus in the lungs) as from dissections, that the pleura is secondarily affected in the disorder, and that the danger attendant upon it is in proportion to the pulmonary affection.

The use of mercurials in this disease does not seem to have been founded on any reasoning that respects the principle of excitability, but on its supposed tendency to promote spitting or expectoration, by attenuating the blood and effused fluids to which might be added its power of promoting absorption.

The following seems to have been a case of pneumonia complicated with hepatitis; and as an example of what not unfrequently appears here in the spring after a few days of warm weather followed by cold, I shall take the liberty of recording it.

M. O. aged 17, on Thursday, 5th of April, complained of a dull pain in the scrobiculus cordis, extending on each side through the hypochondriac regions, with laborious respiration and tenderness about the complaining parts—pulse quick, tongue slightly furred, dry and hot skin, countenance at times remarkably pallid, and at other times as singularly livid.

She had for several days been slightly affected with these complaints, and had taken a dose of pill cochiæ, (aloes et colocynthidis) which produced the expected effect. In the evening of this day she took a pill of two grains of calomel and half a grain of opium, to be repeated at short intervals.

Friday, at eight o'clock in the evening, immediately after having used the pediluvium, and got into bed, she was seized with a great degree of stricture

over the chest, extending along the anterior attachment of the diaphragm, and from the right to the left hypochondrium, so as to impede respiration in an alarming degree. Extreme tenderness was now discoverable directly over the left lobe of the liver and the neighbouring parts, the centre of it being under the inferior extremity of the sternum. The pulse at nine o'clock this evening was 124 in a minute, very small and somewhat hard. The above medicines having had little effect, on Saturday morning the symptoms were all highly aggravated, the pulse now beating 130 in a minute. At nine o'clock A. M. about two ounces of blood were taken from her. It ran down the arm into the cup; on standing, exhibited no appearance of buff, and was followed in a short time with some remission of symptoms, the breathing becoming freer; one grain of calomel was given every two hours, and a blister applied to the region affected. In about three hours the bleeding was repeated to about the same quantity, the blood flowed in a full stream, and, on standing, exhibited the buff on the surface. No relief, however, followed the operation. The pulse became smaller and quicker, beating at the rate of between 135 and 140 in a minute, with much irregularity. The tongue was now white and moist. An enema given this day operated partially, discharging a quantity of clayey fæces, together with a fluid of a bilious tinge.

SUNDAY. Continued the calomel, and took an opiate at night. Pulse 128; skin soft and moist.

Monday. Much better. Pulse in the morning 120, in the afternoon 102. Still continued the calomel. At noon the mouth became sore. The pills were discontinued. Respiration better. At night took an opiate, but rested badly.

Tuesday. Pulse from 118 to 120; respiration quicker, with pain in the right side, when laying upon it. The soreness of the mouth much diminished. She took the mineral febrifuge of Clutton, and began the calomel again.

Wednesday. Pulse 120; mouth very sore. The symptoms abated as the soreness of the mouth advanced. Discontinued the pills. At night slept well, with a gentle perspiration throughout the body.

Thursday. Had a good night. Mouth very sore. She could move in all directions without pain, lay on either side with perfect ease, and make a full inspiration without the least difficulty. She had a steady moisture on the body, without any remaining symptoms excepting those of debility.

The mercury here appeared to produce, at first, an increased frequency of the pulse; but, after the soreness of the mouth had appeared, it became less frequent. From this time till about the 25th day from the attack, the pulse continued much quicker than what might have been expected from the general appearance of the patient, keeping up from 108 to 118 for a long time after every complaint had subsided, and indeed it did not till about the 30th day return to its natural state, when it was reduced to about 75 or 80 in a minute. It was evident, therefore, that

though the operation of the mercury had rendered the pulse slower, when the disease first subsided; yet it afterwards kept up a stimulus of its own, till it was at length in its turn subdued by the powers of the system.

March 19th, Bradish Woods,* labourer, aged twenty-four years, of an athletic constitution, was seized with a pain, between the scapulæ, so severe as to impede respiration. He complained of excessive thirst and great heat on the surface of the body. The pulse contracted, very hard, and beating about ninety-eight strokes in a minute; the tongue and fauces dry, and covered with a brown fur. Twelve ounces of blood were taken from him, and the operation was followed by some alleviation of the pain. A blister was now applied over the whole affected part, which was about five inches in diameter. This relieved the pain, and he rested tolerably well.

Wednesday morning. The pulse was softer, and less frequent, being 98 in a minute. The tongue and fauces still coated. Directed one grain of calomel, with half a grain of opium to be given every two hours. In the evening the skin dry, though not very hot. He complained of pain about the scrobiculus cordis. The vesicating plaster was removed from the back, and the part dressed with unguent.

* The minutes of this case were furnished me by Dr. Chaplin, of Cambridgeport, whose accuracy is of much consequence on account of the experiments mentioned in p. 366 On which account also, this case has been more particularly recorded than any other.

hydrarg. The calomel and opium repeated every hour.

Thursday, 9 o'clock, A. M. He had rested well through the preceding night. His skin was moist, and the pain somewhat relieved. His respiration tolerably free; pulse more open, and about ninety in a minute. The pills were continued, as before. He expectorated mucus, with blood of a dark grumous appearance. At night the pulse 100 in a minute, rather hard; tongue much coated, with great thirst; pain increased, with oppression of the stomach; a slight delirium. Directed three grains of calomel every hour, and a blister over the præcordia.

Friday. The pulse 110 in a minute. Directed a cathartic, which gave great relief. Pulse reduced to 98. He expectorated mucus with blood of a more florid colour. Directed one grain of calomel and half a grain of opium every half hour. Removed the plaster and cuticle, and dressed with unguent. hydrarg.

Saturday. Had rested very well the preceding night in consequence of one grain of opium. Had a free perspiration. Thirst abated; pulse 80 in a minute; had two discharges in the night. Continued the calomel and opium as before.

Sunday. Rested well through the night; pulse soft, about 80 in a minute; skin moist and cool; respiration easy. Directed one grain of calomel every half hour. In the evening his skin continued moist; pulse 74; applied two ounces of unguent. hydrarg. as a dressing for the blister.

Monday. Rested tolerably well through the last night. Pulse about 72, rather full; tongue considerably cleared; cough less troublesome; the gums a little more sore than yesterday. Continued the calomel one grain every half hour.

Tuesday. Had a bad night in consequence of a pain in the left side of the thorax. Directed three grains of calomel to be given every hour. The soreness of the gums increased. Pulse 70 in a minute, rather full. In the evening, gums and throat very sore. Calomel continued.

Wednesday. Tongue quite clear. The calomel pills discontinued for the present. The blister which had been drawn on the side, was dressed with unguentum. hydrarg. ʒij.

Thursday. Pain in the side abated; respiration more free and easy; appetite beginning to return. In the evening had a return of the pain. The pulse became full and hard, about 70 in a minute. Had six ounces of blood taken from him. An opiate was administered and two grains of calomel every hour.

Friday. Pain and all the other symptoms much relieved.

Saturday. Had rested very well. Pain has subsided. Respiration free; pulse 66. The appetite returning. Throat and gums very sore, with small ulcerations. Gradually recovering. The mouth was still sore, and continued so for several weeks, with a strong mercurial fœtor in the breath.

The quantity of calomel, used in this case, was 237 grains within eight days, and 8 ounces of

strong mercurial ointment were applied in the same time.

It was this patient upon whose blood and saliva the experiments mentioned in page 366 were made.

SECT. VII. PHTHISIS.

Phthisis is sometimes a consequence of pneumonia; and, if the utility of mercury is established in that disease, one variety at least of consumption is indirectly included within the empire of this medicine. Its use in the pulmonary consumption is the particular object of our present inquiry.

It is a melancholy truth, that a great number of young persons of both sexes, between the age of seventeen and twenty-seven, die of this disease. And, that it is much more prevalent of late years, than formerly, is a general observation, and I believe not altogether unfounded. From the best information that could be collected, it appears that about one seventh part of the deaths in this state are from consumption.

In the town of Boston, according to the bills of mortality for the last nine months from 1st July, 1804, 323 persons have died, of whom 140 were males, and 165 females. Of the 18 remaining, the sexes had not been noted. Of the whole number, 56 died of consumption, 17 males and 39 females, amounting to more than one sixth part of all the deaths.

The consumptive period is, according to these bills, different from what has been remarked in most other places, a smaller proportion having died between 17 and 27.

In the populous seaport towns, the mortality from this disease is considerably greater than in the country.—I impute this chiefly to these causes; dissipation and intemperance, too little exercise, and improper clothing; this not being adapted to the nature of the climate, the season, and mutability of the weather.

The first of these causes principally applies to males, and is voluntary; the two latter to females, and are the effect of pride, vanity, or carelessness.

That whatever cause produces indigestion, must weaken the constitution exposed to the influence of noxious causes, such as cold and moisture; and thus frequently lay the foundation for incurable disease, is too obvious to require explanation.

To dissipation and intemperance young people of the male sex not uncommonly owe their loss of health, especially their pulmonary complaints, to which, at their period of life, they are so peculiarly incident.

Spirituous liquors are never necessary for the young and healthy. Those of the ardent kind are especially injurious.*

* It is a common opinion, that ardent spirits are necessary for hard labouring people. The truth is, that those are the very persons who ought not to use it. The labour itself has exhausted excitability, and ardent spirits will generally exhaust it further.

Even wines in the quantities too often used, and under the circumstance of a full stomach, are far from being salutary: They not only impair, but they destroy digestion.*

A common source of consumption in our females is want of exercise; there is perhaps no place in which the common habits of improved social life are adopted, in which this sex are less attentive to that most essential requisite for the preservation of health than in this.

No exercise is equally salutary with that of walking. This gives action to the muscles of the limbs, where the circulation, from the distance of the vessels from the heart, is apt to be languid. It throws the blood forcibly forward towards the lungs, and thereby affords an opportunity for the mass to be exposed in larger quantities to the action of the air, by which alone it is rendered fit for circulation. This oxygenation of the blood by air endues it with the property, by which it is enabled to excite its

* The following experiment will prove this. An equal quantity of the same food was given to two young dogs. Immediately after, three drachms of ardent spirit, mixed with one of water, were poured down the throat of one of them. In five hours both were opened, as nearly as possible at the same time. The dog, which had taken the spirit, had his stomach twice as full as the other: the bits of flesh were as angular as when just cut with the knife, and as firm as when first taken down. In the other, the angles were rounded off, and the pieces much softer. In short, digestion had considerably advanced in the one, that without the spirit, while it had been suspended in the other. Vide Beddoes Hygeia, Essay 8. vol. 2. p. 25.

vessels into stronger action, and by that means to give strength and vigour to the whole system.

Who does not notice, that our sedentary females are put out of breath by the smallest degree of exertion, beyond what they have been accustomed to? That the lungs have become so irritable for want of the stimulus, which exercise exerts upon them, as to be thrown into a kind of convulsive cough from the most trifling acceleration of the blood in its passage through them. Whereas in the females of our country towns, who have constantly habituated themselves to walking, riding, and the great variety of domestic labours, may be noticed the large play of lungs in quick walking; a deep and full respiration, with all the attendant advantages of a sufficiently complete oxygenation of the blood.

Nor are these observations inapplicable to the other sex. There is not one man in a hundred, that exercises sufficiently in mercantile cities; because not one in a hundred, from the nature of his occupation is obliged to do it; and not one in two hundred will do it from principle.

The fashionable modes of clothing constitute a no less fruitful source of infirmities, than those before enumerated.

The coldness of our easterly winds in the spring is such as to occasion very uncomfortable sensations in the generality of persons exposed to their influence. It has been remarked, that the solvent power of an easterly wind upon water is astonishingly

great. After blowing over a large tract of ocean it contains much water, but it is chemically combined with it, and consequently transparent; it is also observed to take up more vapour from the ponds and meadows over which it passes, than that which blows from any other quarter. The thermometer, of course, discovers the increase of cold consequent upon this evaporation.

The warm rooms, which are usually an appendage to the luxury of the capitals, and thin clothing abroad, lay the foundation for many of those complaints, which are the precursors of consumption. It is thus, that catarrh usually originates in this country; and this always debilitates the lungs, and often terminates in consumption. Even the cough itself, sometimes, separately from the cause of the catarrh, either ruptures the vessels, and produces spitting of blood, or, by straining and weakening the vascular ramifications, disposes to tubercles; and, therefore, in that dry, teazing cough, which so often follows a cold, the inclination should be resisted as far as can be conveniently done.

Tubercles and hœmoptysis, or spitting of blood, are the two most common origins of pulmonary consumption prevalent among us. The former are by far the most numerous; bearing the proportion to the other of about three to one.

In nearly all the consumptive bodies, which I have opened, these tubercles were more or less numerous. They were generally of a nature somewhat similar

to the indurations found in the mesentery, and sometimes as hard as portions of urinary calculus, often with an appearance of beginning suppuration, the centres of the bodies generally containing a semipurulent fluid. In almost every case of dissection the lungs were found adhering to the pleura.

Some light has been thrown upon the manner in which these tumours originate, by the experiment of Dr. Haighton, in which the veins of a dog were injected with quicksilver, which being carried into the lungs by the pulmonary artery, first produced fever, and in a short space of time tubercles. These proving fatal, the dog was dissected, and globules of mercury were found to form the nuclei of a great number of tubercles contained in the lungs.

The Dutch are said to be free from consumptions, in consequence of the largeness and coolness of their rooms, whilst they wear a great quantity of clothing,* and upon the latter they altogether depend for security against cold. The reverse of both these circumstances prevails with us. The clothing of the women is very little proportioned to the weather. Sitting for the greater part of the time in warm rooms,

* The men two shirts, a flannel waistcoat with sleeves, woolen drawers and stockings, night and day; over these a waistcoat without sleeves. To these are sometimes added a wrapper of thin woolen cloth, several yards long, then the outer waistcoat with sleeves, and coat; and when they go into the cold air, a cloak of thick cloth lined with woolen. The females in the same proportion. Vide Beddoes on consumption.

exposing themselves, when they go out to cold air and wet streets, and returning again to heated rooms, are the direct means of bringing on catarrh, the common harbinger of consumption.

The production of tubercles is easily accounted for by the operation of cold, destroying the balance between the exhalants and absorbents, to which there seems to be a predisposition at the consumptive period. In the early periods of life the action of the exhalants, especially of the interior exhalants, which belong to the organs, exceeds that of the absorbents; and this excess is undoubtedly increased when the function of the superficial or cutaneous exhalants is interrupted by the effects of cold.

The universal sympathy of parts with the skin will readily account for the effects of cold upon the surface of the body; for though the internal parts preserve nearly the same temperature, the skin is exposed to great changes.*

The use of mercury in consumption was probably suggested by several considerations, and on several hypotheses of different construction.

The mechanical theory gave origin to the exhibition of mercury as a deobstruent, obstruction (in tubercles) having been assigned as the proximate cause of the disease.

The doctrine of absorption also supported it, as this medicine was supposed greatly to promote that action in the lymphatic system; and the theory of

* Vide Experiments of B. Robinson.

excitability has adopted this medicine as possessing a power of removing diseases which were supposed to arise from asthenic diathesis.

Though there are other medicines in which physicians in general have much more confidence than in this, yet there are some very respectable authorities which give countenance to the practice.

The pneumatic system of medicine at one period, seemed to promise some important advantage in the treatment of consumption; and it was confidently expected that the modern discoveries in chemistry, from which such immense acquisitions to the cause of science in general have been derived, would furnish some new and more efficacious article for the cure of this disease.

The different gases have accordingly been assumed as the proper instruments for experiments on this most important subject. One or two of them have been found, in part, to answer some of the indications of cure in this disorder; but none of them seem finally to have answered the expectations of their advocates.

Hydrocarbonate has been employed in one of the intentions, founded on the existence of tubercles in the lungs, and has been proved to promote absorption.* This having been inspired in a number of cases of lymphatic effusions on the surface, the fluid was in every experiment absorbed with wonderful celerity.—Oxygen had been used alone for this

* Beddoes and Watt, on factitious airs. Vol. 2, part 4, page 156.

purpose, but without effect. In some experiments it was mixed with hydrocarbonate.

Oxygen inspired for any considerable time, injures the lungs and aggravates the symptoms in pulmonary consumption. In some experiments made on persons in health, it appeared to promote a predisposition to phthisis, and did not, of course, give any relief in actual consumption.

Upon the whole, it was concluded that the disease originated from super-oxygenation of the blood. Azotic gas was therefore next resorted to by the pneumatic physicians, and the inspiration of this gas was thought to palliate the complaint. From recent information, however, it appears that nothing of importance is to be expected from these remedies.

Tonics have also been strongly recommended, but their success is doubtful.

Digitalis has of late obtained a high degree of reputation in consumption; and is thought, by its power in commanding and regulating the circulation, to be a very important acquisition to the medical art. That it does often render the pulse slower, is indisputable; but whether its efficacy in curing this disease, is in the same proportion, is questionable. This subject has been ably discussed by the late president of this society,* and requires no further notice on the present occasion. It is, however, an undeniable truth, that no medicine will apply to all the varieties of any particular disease.—Hence the advantage of

* See Dr. Rand's Dissertation, read before the Medical Society.

investigating the efficacy of new medicines, even in those diseases which are most under medical control.

Dr. Rush has published a number of cases of pulmonary consumption, treated by mercury.* In three cases salivation proved a complete cure. Dr. Pfeifer relates also a case of a person in a very davanced stage, cured by the same means. This method has been tried in many instances in this place. In one case which originated from hæmoptysis, it was not successful. In several, where there was evidence of tubercles, and at length suppuration, it was used through all the stages of the disease, but without advantage.

The following is the only instance in which I found it useful.

1805, I visited a lady, who for several weeks had laboured under a severe cough, with slight pain in her side. On examination, her pulse was found small and irregular, about 100 in a minute, with short and difficult respiration, stricture over the chest, night sweats, extreme debility, and most of the common symptoms of deep pulmonary affection. Expectoration of matter of a purulent appearance, constant diarrhœa and extreme emaciation, designated the extreme hazard of the case. She was from home when these complaints first came on, and had taken no medicine till I visited her.

As her countenance was of a yellowish cast, I gave, the first day, an emetic of ipecac. and an opiate at night. I then gave her the usual expectorant me-

* Medical Repository.

dicines; but for several days the symptoms increased rapidly, and I considered her case as almost desperate.

Her diarrhœa and cough continuing, I ordered a pill of one grain of ipecac. and two of calomel to be given every twelve hours. On the third day, after having taken six pills, the mouth became to my astonishment suddenly sore, and on examination I found her breath strongly affected with a mercurial fœtor.*

The pills were immediately discontinued. For several days the salivation continued to increase. the ulcerations in the mouth became extremely troublesome, the breath intolerably offensive, and the gums, tongue, and fauces so much swelled, as to occasion great distress, and almost to threaten suffocation. The most powerful doses of opium procured little rest at night.

From this time her cough abated, the night sweats were less profuse, her pulse daily became slower, and, by the time the salivation had subsided, which was not till the end of the fourth week, all her symptoms had completely disappeared. She has had no complaint of any kind since, has recovered her strength and flesh, and at this time is in perfect health.

In this case, from the colour of the skin, there was much reason to suspect some hepatic affection; and the efficacy of the salivation, which was indeed

* This is one of those cases in which the necessity of great caution in the use of mercury, from the small quantity which will in some habits produce salivation, is exemplified.

entirely accidental, seems to afford some grounds for a conjecture, that the consumptive complaints were merely symptomatic.

It is possible, that some disease existing in the liver, might, from its connexion with the diaphragm, bring on the pain in the chest, and the difficulty of respiration; and from the increased irritability of the coats of the lungs, the quickness of the pulse may be accounted for.

Whether any affection of this nature might have combined with the diseases cured by Drs. Rush and Pfeifer, is mere matter of conjecture. I have however no difficulty in concluding that, in complicated cases of this kind, mercury would be preferable to any other medicine in common use.

In venereal consumption it may, if seasonably applied, with much certainty be relied upon for a cure.

In the common tubercular phthisis, the powers of this medicine in promoting absorption might, possibly, be sometimes beneficial; but in the ulcerated state I should much doubt its utility.

This stage of the disease is easily distinguishable from the other by the appearance of the expectorated matter, according to the established tests for identifying pus, and the uniformity of the symptoms after suppuration has taken place.*

* An opinion has been entertained that a species of consumption, denominated mucous, is of the same nature with gonorrhœa, owing to an irritation on the mucous glands of the lungs, which prevents their due preparation of the mucus—hence the

So far as the action of mercury may be considered as dependent on its oxygen, it might be suspected to be injurious in phthisis, by adding more of that article to the already super-oxyginated mass. If it is a fact, that the mass of blood in consumption is in this predicament, the objection must have weight.

It would seem however unaccountable, that this should be the case under a state of the lungs, in which a part of their vessels must be impervious. It would be natural to suppose, that less oxygen would be absorbed, and the whole system would rather suffer from a deficiency, just as in cases of pregnancy, wherein one pair of lungs is sometimes insufficient to oxygenate the whole mass for both mother and fœtus, and abortion is the consequence.

SECT. VIII. DYSENTERY.

This disorder is generally attended with an inflammatory affection of the intestines, chiefly of the rectum and colon. It may therefore, though arranged by Dr. Cullen under the order of profluvia, as properly be placed under that of phlegmasiæ. It is then consistent with the prevailing opinion respecting the effects of mercury to use it in this disease.

One part of the character by which it is defined, an increased secretion of mucus from the intestines,

form of this disease which is so easily cured by mercury, is inferred to be of this description. Richter's Medical Observations, 1794, p. 272.

seems to militate against this practice; for mercury is known to increase the secretions; but this matter has been explained above. As a cathartic, combined with other articles to increase its activity, it might be useful in removing the fæces, the retention of which constitutes the other part of the character of dysentery.

By inducing a new action in the system, particularly by its stimulus on the salivary glands, it may perhaps excite a greater irritation on those parts, and take off that subsisting in the intestines. The old doctrine of revulsion seems to have been founded on observation and experience, however crude might have been some of the opinions entertained respecting it. The above theory has much affinity to it; and seems to explain many phenomena in disease as satisfactorily as we can expect; the greater irritation destroying the less.

Messrs. Yeates and M'Lean have published an account of their practice in dysentery at Calcutta, which consisted in exciting salivation as speedily as possible.

Some of the cases which they have exhibited are worthy of attention, in order to form deductions with respect to the propriety of salivation in this disease.

In the first case immense quantities of tincture of opium were given in doses as high as three, four, and five hundred drops an hour, till salivation took place; the patient recovered.

The second was seized with dysentery 28th August, 1796, with a pulse at 132, and foul and dry

tongue. He took calomel gr. ij, every hour with opium; unguent. hydrarg. ʒ ij.; and calomel ʒ j. were rubbed into the skin. 3d of September the pills were given every hour, pulse gradually lessened in frequency. 4th, cal. ʒ ij. and ointment ʒ j. were rubbed in. On the 7th, after the warm bath, he had an eruption on the skin, as usually happens, when much mercury has been given without salivation. The mercury was increased both ways, and was taken latterly in doses of 20 grains of calomel and 6 of opium every two hours. 9th, he died without ptyalism.

The third began the 26th of August to take calomel. Had, before taking it, thirty stools a day. Pulse ninety. ℥ss. of unguent. hydrarg. ʒ j. of cal. rubbed in almost every day, and one hundred drops tinct. of opium taken into the stomach. Pulse became gradually slower. Stools less frequent, till the thirty-first, when the mouth became sore. At night began to spit. Third of September, laid aside the ointment. He recovered.

A remarkable case is related, wherein soreness of the mouth and diarrhœa several times alternated with each other. On the soreness of the mouth going off, the diarrhœa returned, and vice versa.

In 1785, Dr. Clark, in the dysentery, which at that time was epidemic about Newcastle, first used calomel as a purgative, but was soon convinced of its superior efficacy as a sialogogue. In the beginning he gave from five to six grains with opium, and continued it, till salivation was produced. He found, that

the majority of subjects in England would require from twenty to thirty grains to produce salivation, though in some it was effected by twelve. In all cases, where this took place, the distemper gave way, and it removed, as he declared, the inflammation and ulceration of the intestines. A number of cases are detailed, and the success they exhibit was astonishing. In chronic cases he advised small doses at longer intervals, and salivation to be carefully avoided.

Dr. Lind was equally successful with calomel, and imputed its efficacy to its preventing inflammation and consequent mortification.

Dr. Balfour, in Bengal, practised in the same manner, and with similar success.

Dr. Cleghorn, of Minorca, found that six or seven grains of calomel, with one of opium, produced fæcal discharges, when nothing else would.

At Boston, this disease usually appears in autumn; and the mercurial treatment has been adopted with some success. The manner in which I have used it, has been by combining it with ipecacuanha.

A. F. was seized with the disorder in the most violent form. Stools extremely slimy with blood; tenesmal efforts almost incessant; mucous discharges every ten minutes; skin hot and dry; abdomen, about the hypogastric region, too sore to admit of the slightest touch; tongue covered with a brown saburra. Ordered him twenty-five grains of ipecac. with fifteen grains of calomel. This produced a most copious evacuation of fœcal matter, which had been long retained; and he never had another dysenteric

discharge. The fever left him, and in a few days he recovered his strength.

1802. H. I. had the usual symptoms. Took three grains of calomel every three hours. The third day the discharges became fœcal, and he speedily recovered, without soreness of mouth.

MANY other medicines, however, have been used with equal success in dysenteries. I have seen none more useful, than the extract of juglans cinerea, when properly prepared, given in doses of 4 or 5 grains every hour, till it produces black and frothy discharges, which were the almost certain signs of speedy recovery. A great advantage attending the use of this medicine in children, is the facility with which it may be given to all subjects in a state of solution. Rhubarb has often been prescribed in this disease, but is probably injurious, in all cases which are highly inflammatory.*

SUPPOSING it to originate from obstructed perspiration, some have placed the whole curative intention in the use of diaphoretics. Small doses of ipecacuanha with opium and the warm bath, constitute an important part of medical treatment. Vesications on the abdomen are also highly useful, and dressing the blisters with unguent. hydrarg. affords a convenient method of introducing, at least a small part of the mercury into the system, and this observation will apply to all cases in which blistering is used and the mercurial treatment adopted.

* Richter, in Medical Observations, p. 92 says, rhubarb kills in dysentery.

SECT IX. RHEUMATISM.

Rheumatism is often prevalent through the greater part of the winter. It has, perhaps, never been more general at any one time in Boston, than in the last winter. It has been chiefly of the acute form, attended with extreme pain, and was with difficulty removed.

After bleeding, mercury has been employed, and in some instances with success.

Dr. Hamilton, of Linn Regis, recommended it in inflammatory gout; and his authority has been adduced in favour of its use in rheumatism.

Dr. Clark, in his account of the diseases of long voyages, observes, that he successfully treated rheumatic complaints after they had resisted the usual remedies, with mercurial pills and frictions, taking care to avoid salivation, which he observed to be injurious by protracting the disease.

In most instances in Boston, it commenced with general febrile complaints followed by pains of the erratic kind, which at length seated upon one or more of the limbs, with a redness designating the pained part. This appearance generally shifted from place to place; and, in several instances, passed successively through all the extremities.

Blisters were often useful in relieving the pains. Diaphoretics with facility produced sweating; but the freedom from pain was not in proportion to this evacuation; it was often very profuse,

with very little relief. The blood drawn had an inflammatory buff.

P. M. was seized in the usual form. About the second or third day his wrist and ankles became swollen and extremely painful, with superficial redness, and so great a degree of sensibility as to be incapable of the least motion. The tongue coated with a brown fur; pulse full and hard, with incessant nausea. Gave an emetic. The next day a dose of jalap and calomel was given. The day following, he was ordered a pill of two grains of calomel, and one quarter of a grain of opium, to be taken three times a day. This he continued for four days, till his mouth became sore, when a universal moisture took place, but without relief. Ordered blisters on the arms, the pills to be continued night and morning, with the addition of three grains of opium at night. Diaphoresis continued profuse; redness of the wrists much abated, that of the ankles increased. Applied blisters to the inside of the legs over the inflamed surfaces. His pain subsided, pulse became less frequent, and perfectly soft. The tongue assumed a dark appearance; the mouth became very sore, with much fœtor, but without ptyalism. After he had taken fifteen grains of calomel, the soreness of the mouth having become very troublesome, it was laid aside. He gradually recovered, and in four weeks was able to walk abroad, and had no return.

G. B. was attacked in a less violent manner. I did not visit him till he had been sick nearly two weeks. He had done nothing with good effect.

His wrists were very painful, he was afflicted with lumbago, and had no sleep in the night. Pulse hard. Bled him, and gave him a pill of two grains of calomel, and half a grain of opium every four hours. A copious sweating was attended with little relief. On the third week of this course his mouth became a little sore, and the pain slowly subsided, but he did not recover his strength under eight or nine weeks from the seizure.

In this case the relief seemed to be the effect of opium, but there is no doubt, that, by keeping up the perspiration, the mercury shortened the complaint.

CONCLUSION.

From a view of the whole subject, the following remarks have been suggested.

That the effect of oxygen administered as a medicine is that of a stimulus upon the vascular system, and a change, at least, in the colour of the blood, which it renders more florid.

Whatever articles of the Materia Medica contain this substance in such state of combination as will admit of their being employed in medicine, and introduced into the system, may excite into increased action the muscular fibre, and therefore change the state of the body.

Mercurial preparations appear to be well adapted to this purpose, and as the oxides of this class operate more powerfully as stimulants than

simple oxygen alone, we have reason to believe that the metallic part of this combination is an essential article in the medicine; and, whether admitted into the blood or not, must in some way or other increase the force of circulation, and that by this property, they may possess the means of curing many diseases with more certainty than any other.

It would be unphilosophical, however, to suppose them capable of acting as specifics in such diseases, even in lues venerea, or mechanically by their ponderosity, as their effects may be accounted for upon known laws of the animal economy, and also on the power which these medicines possess of increasing the action of the stomach and bowels, of accelerating the peristaltic motion, and promoting the secretions in general, and those of the salivary glands in particular; and on their influence over the heart and arteries, subverting in a great measure, the existing order of action in the body; and thus, in morbid states of it, affording an opportunity to the disturbed functions of returning to their natural healthy relations; and the more active such preparations are rendered, the more certainly will they break the diseased relations.

It is an acknowledged law of the animal system, that in a state of health, the functions of the body become so associated with each other from habit, as to acquire a relation which disposes them to act in concert with each other, and thus to repeat actions which they have been accustomed to exercise in the same order; as many phenomena of health clearly prove.

But this principle of action may be interrupted by disease, for certain healthy associations in the organs are necessary to enable them to perform their offices, and, when these associations are once broken, the diseased action will begin to acquire similar associations, and the longer they exist, the stronger will they be. But those medicines which produce such revolutionizing effect upon the system may, by altering the habits of action, or the order in which they have been exercised, give opportunity for the healthy associations, if they have not been too long and too completely interrupted, to resume their former exercise.

Violent means are sometimes necessary to remove violent diseases; and, as it is probable that the constitution cannot at the same time be under the influence of two general constitutional actions, at least to any great degree, this principle will co-operate in removing disease.

Though the degree of exhibition of mercurials and such other medicines as have the power of producing these effects must depend on the violence of disease, and consequently salivation may be sometimes necessary, yet it is possible that slighter changes of the system from smaller quantities might generally be sufficient; and salivation, the effects of which upon the habit are in some measure equivocal, might be avoided; and, that in all cases we ought to keep a watchful eye upon the mercurial process, as it sometimes runs suddenly on to salivation; for

which reason also we ought constantly to have at our command means to control it when it actually takes place.

Mercurial medicines in febrile diseases appear to be applicable, principally to those of the phlegmasial order, and the character of inflammation has by no means been considered of late as forbidding the use of them, as they have been largely adopted in many of the most inflammatory diseases, and particularly in one variety of what has been denominated yellow fever, which has frequently borne strong marks of this character.

The quality of contagion in this fever has been generally denied; by some, however, it has been strenuously supported,* and mercurial medicines have been supposed to possess the power of destroying it; but as from the testimony of many writers on the subject, and of most of the physicians of this country, this doctrine is generally exploded, no inferences are to be drawn from the hypothesis of contagion as to the efficacy of mercury. There is much reason, however, for believing that this class of medicines has been useful in the treatment of yellow fever as it has appeared in America; but in this disease, generally speaking, the simple effect of stimulating the system so far as to render the mouth sore without

* Contagious diseases are understood to be such as arise from the vitiated product of vascular action, capable of exciting in a healthy person a disease like that by which itself was produced. And infectious, such as, though they *may* propagate disease, do not necessarily do so, nor invariably produce the *like* disease.

salivation might be sufficient, though in violent cases the latter becomes necessary. The difficulty of effecting it is in proportion to the degree of local affection.

As the epidemics which usually prevail in hot climates are highly inflammatory, mercurial medicines were formerly supposed to be utterly improper in that description of fevers; yet it has of late been principally relied on for the cure of these fevers by the physicians of those countries, and as is alleged, with general efficacy.

Bleeding is often a useful preparatory to the use of mercurials in these fevers; and indeed in the general administration of them in febrile disorders, it should be practised.

The cold bath in some cases may be useful as an auxiliary to mercury by supporting the powers of the system when it is too weak; for which purpose the peruvian bark and other tonics may be employed to advantage.

The warm bath may not only aid the operation of mercury upon the habit, but may also moderate the violence of action in the system under salivation.

Of the different methods which have been adopted for the purpose of removing salivation, some of them are doubtless useful, amongst which is the sulphureted hydrogen, which is probably the most active.

The method of purging, upon which great reliance has at all periods been placed, for checking salivation, is utterly ineffectual in the common state of the system whilst under the influence of mercury, as it has

been found by experiment rather to prolong the mercurial action, than remove it.

Though we consider it a well established fact that the epidemics which have prevailed in Boston, New York, Philadelphia, and some of the southern states, are not contagious; this fact ought not by any means to produce relaxation in the police laws of the several cities of the United States; because it has been fully proved in many instances that the air of the holds of vessels from hot climates is so extremely impure and noxious, as often to operate as a most deadly poison upon the constitution of persons exposed to its influence; and besides, persons who may be sick on board ship in very long voyages, are frequently known to labour under diseases of malignant nature, which, though not contagious, may be highly infectious, (a quality of very different* character) as articles calculated to generate such fevers are often known to abound on board vessels, from putrefying animal and vegetable substances.

The most scrupulous attention too should invariably be paid to cleanliness in large cities, and every source of impurity should accordingly be prevented by constantly washing the streets, cleansing the cellars and docks, and covering with gravel, and raising

* Dr. Hosack, the distinguished professor of the theory and practice of physic in New York, is the only writer in this country, who has of late supported the doctrine, that yellow fever is contagious. Although we do not agree with him on this point, it must be admitted that his researches have thrown great light upon the nature of contagion and infection.

low lands, in which water has become stagnant, and which, being charged with filth, may become a fruitful source of the most fatal exhalations; and these regulations should be the more rigidly enforced in proportion to the heat of the season, especially if accompanied with fogs and humidity, till copious rains or frost, ensue, by the former of which the filth of the streets will be washed away or diluted, and by the latter rendered inactive.

The diseases, which prevail mostly in cold climates, being those which arise from altered excretions, rendered active by no other cause than the heat of the human body, and being of a putrid nature, the efficacy of mercurials must be considered as hypothetical; although, so far as they supply oxygen to the system they may be proper, as in those diseases oxygen is supposed to be deficient.

In natural small pox, the dependence, which from early periods has been placed upon this medicine from analogical reasoning on the natural termination of the disease, is well founded; but in the preparation for inoculation there was no reason for this confidence, as this medicine has no effect upon the disorder other than as a cathartic or anthelmintic.

In measles its stimulant powers appear to be well adapted to the indication of cure, by dislodging the viscid matter with which the glands are apt to be surcharged, and by promoting expectoration.

In cynanche trachealis or croup, the benefit to be derived from the exhibition of mercury is very much limited by the shortness of the complaint, and the dif-

ficulty of bringing the medicine into action before the disease must have terminated; though, if given in large doses, with this view, there is little danger, from the difficulty of salivating children, who are generally subjects, of this distemper.

In hydrocephalus internus, it is not certain, that any actual cures have been wrought by mercury; but as no other remedy has obtained confidence in this disorder, it will probably be the principal one which physicians will adopt, because it appears to possess the power of promoting absorption; but this would be a more weighty argument if we could consider the mere existence of water in the brain as the principal circumstance in the disease. But as the inflammation of the membrane within the ventricles of the organ is the cause of the effusion, the effects of the medicine must be very limited.

Cynanche maligna having appeared at different seasons, in forms somewhat various, some difference of treatment must obviously be required. In its common form in this state, mercury has been found highly beneficial; but in that variety of the disorder in which the vital powers are most remarkably depressed, it has not been found serviceable. Peruvian bark and other tonics, together with stimulants in general, have been mostly relied upon. The utility of blisters, especially to the glandular swellings on the neck which often accompany it, is in some degree limited by their interference with one of the most successful modes of treatment in the latter variety, cold ablusion to the parotid glands.

Pneumonia and pleurisy, are successfully treated by mercurials; which, combined with opium, have an admirable effect in promoting expectoration. This is an imitation of the mode in which nature has been usually observed to terminate this disease; at the same time they sensibly diminish the heat of the body by inducing perspiration.

The cure of pneumonia by mercury may often prevent phthisis; though, when suppuration has once taken place, no benefit is to be expected from it.

In other forms of consumption, it is suspected that mercurials are injurious; in that description which originates from tubercles, which constitutes a considerable proportion of the whole, it might sometimes be serviceable, provided it were administered only in the first stages of the disease.

In that which is connected with hepatic affection, if a primary disease, it has indisputably been beneficial.

Dysentery generally arises from inflammation in the colon, or rectum, or perhaps in both. Calomel has often been serviceable as a cathartic and alterative, but its successful operation is much promoted by a combination with other medicines, of which the most useful is ipecacuanha, and I believe the least so is rhubarb.

In rheumatism, especially of the acute kind, I have never seen it pursued with much advantage. In promoting perspiration, a great object in this disorder, it is aided by opium; and the relief from pain which commonly ensues, seems to be in proportion to the latter.

Upon the whole, there is no doubt but much mischief has been done by the indiscriminate use of mercurials in diseases of almost every description, and especially by salivation; and the variety of constitutions is such, that these effects do often suddenly and unexpectedly take place by a rapid introduction of them, which is justifiable only in diseases of great obstinacy. The change produced by salivation is sometimes so great, as to become itself a formidable, and even fatal disease.

Impartiality however requires, that this subject should not be dismissed without an observation of some consequence in the inquiry. No instance, I believe, has ever been afforded within the whole compass of medical experience, of a medicine of equal activity, having been so thoroughly tested in different countries, and in all forms and degrees, as mercury. If so destructive to the constitution as some have represented, it would long since have been condemned by the experience of physicians in those countries in which it has been most exhibited. That salivation increases the irritability of the system, and may sometimes have laid the foundation of chronic disease, may be admitted; though a suspicion of it ought not to prohibit the use of it as an excellent remedy in some of the above diseases in the hands of the skilful. But this circumstance should be improved to enforce caution in the practice.

NOTES TO ARTICLE XII.

Note A....Page 243.

Medical Degrees at Foreign Universities.

Bachelor in Medicine. Jacob Ward.

Doctors in Medicine. Samuel Bellingham, Henry Saltonstall, John Glover, Leonard Hoar, Edmund Davie, Roland Cotton, Thomas Bulfinch, Bela Lincoln, Charles Russell, John Jeffries, Peter Oliver, Benjamin Waterhouse, William Spooner, Charles W. Windship, John Collins Warren.

At Philadelphia, Daniel Newcomb, William Aspinwall, jun. George Cheyne Shattuck, Jacob Bigelow.

Note B....Page 243.

The Hospital Surgeons, belonging to Massachusetts, whilst the army was in the vicinity of Boston, were, Isaac Foster, William Aspinwall, Lemuel Hayward, Samuel Adams, and John Warren. Regimental Surgeons: William Eustis, Thomas Welsh, Timothy Childs, David Townsend, William Towner, Ambrose Spofford, Thomas Kittredge, Nathaniel Bond, John Hart, Walter Hastings, Amos Holbrook, John Sprague, William Dole, Erastus How, and Lemuel Cushing.

Hospital Mates: William Durant, William Gamage, Joseph Hunt, James Thacher, Ebenezer Crosby, Samuel K. Glover, John Georgius, Richard Russell, Samuel Whitwell, and Josiah Bartlett.

The inhabitants of this commonwealth, who continued as surgeons in the hospitals and army during the war, were Isaac Foster (who was deputy director general) William Eustis, Samuel Adams, John Warren, David Townsend, John Hart, Joseph Fiske, and Josiah Bartlett.

NOTE C....Page 246.

Original Fellows of the Medical Society, named in the act. Nathaniel W. Appleton, William Baylies, Benjamin Curtis, Samuel Danforth, Aaron Dexter, Shirley Erving, John Fiske, Joseph Gardner, Samuel Holten, Edward A. Holyoke. Ebenezer Hunt, Charles Jarvis, Thomas Kast, Giles C. Kellog, John Lynn, James Lloyd, Joseph Orne, James Pecker, Oliver Prescott, Charles Pyncheon, Isaac Rand, Isaac Rand, jun. Micajah Sawyer, John Sprague, Charles Stockbridge, John B. Swett, Cotton Tufts, John Warren, Thomas Welsh, Joseph Whipple, and William Whiting.

NOTE D....Page 247.

The other offices instituted, were a vice president, seven counsellors, corresponding and recording secretaries, a treasurer, librarian and cabinet keeper, which have been continued, with an increase of counsellors in 1803. The successors of the first president were William Kneeland in 1784, Edward A. Holyoke in 1786, Cotton Tufts in 1787, Samuel Danforth in 1795, Isaac Rand in 1798, and John Warren in 1804. The vice presidents: James Pecker in 1782, Cotton Tufts in 1785, Isaac Rand, sen. in 1787, Samuel Danforth in 1790, Samuel Holten in 1795, Isaac Rand in 1797, Ebenezer Hunt in 1798, John Warren in 1800, and Joshua Fisher in 1804.

NOTE E....Page 247.

Corresponding and advising committees. Suffolk: Cotton Tufts, Thomas Williams, and Joshua Barker. Essex: Edward A. Holyoke, Nathaniel Salstonstall, and Micajah Sawyer. Middlesex: Isaac Rand, Simon Tufts, and Oliver Prescott. Worcester: Israel Atherton, John Frink, and Samuel Willard. Hampshire: Ebenezer Hunt, Chauncy Brewer, and Henry Wells. Berkshire: Erastus Sargent, and Oliver Partridge. Bristol and Plymouth: William Baylies and Charles Stockbridge. Barnstable, Dukes County, and Nantucket: Abner Hersey. York, Lincoln and Cumberland, Thomas Rice.

Vacancies by death or other causes, were filled with senior practitioners, in the respective districts, till the law of 1803.

NOTE F....Page 247.

Books required to be read by candidates for examination, established June, 1808. Anatomy: Cheselden and the Edinburg system. Physiology: Haller, Blumenbach, Boerhaave and Cullen. Chemistry: Chaptal and Woodhouse. Materia Medica and Pharmacy: Duncan's Dispensatory, Massachusetts Pharmacopœia, Lewis or Murray's, and Cullen's Materia Medica. Surgery: Benj. Bell's System, do. on ulcers, and on lues vener. John Hunter on lues vener. do. on the blood, and on gun-shot wounds. Desault or Boyer, on diseases of the bones. Obstetricks: Burns' Anatomy of the gravid uterus. On abortion, Denman or Smellie. Pathology and Therapeutics: Cullen's first lines and nosology, Darwin's Zoonomia, Van Swieten's commentaries, Sydenham by Wallis, Jackson on fever, Rush's works, Saunders on the liver, Currie on waters, Underwood on the diseases of children, Pemberton on diseases of the abdominal viscera.

NOTE G....Page 247.

The censors of the Medical Society are, Lemuel Hayward, Thomas Welsh, Aaron Dexter, Josiah Bartlett, and William Spooner. The persons who have served in that office are, Samuel Danforth, Charles Jarvis, Joseph Orne, Cotton Tufts, John Warren, Simon Tufts, William Kneeland, Thomas Kast, Benjamin Curtis, Thomas Williams, Isaac Rand, William Baylies, James Pecker, James Lloyd, Joseph Gardner, Oliver Prescott, Isaac Rand, jun. Marshall Spring, John Brooks, William Eustis, Nath. W. Appleton, John Homans, and Joseph Whipple.

NOTE H....Page 248.

The following persons have been admitted licentiates in medicine by the censors of the Medical Society: Nathaniel Parker, Philip Draper, Nathaniel A. Haven, Moses Willard,

John Bartlett, Larkin Thorndike, Timothy Swan, John Dashwood, Gustavus Baylies, Oliver Prescott, jun. Abiel Pearson, Benjamin L. Oliver, John Pratt, Daniel Adams, George H. Hall, John Fleet, William Hall, Samuel E. Hollis, William C. Weston, Cephas Prentice, Isaac Rand, 3d. Charles Coffin, Aaron Kinsman, Samuel Angier, Ebenezer Learned, Moses Little, Caleb Marsh, John A. Hyde, John C. Howard, Micah Stone, Moses Appleton, John Park, Moses Adams, Abraham R. Thompson, Henry Gardner, Charles Kitteridge, Lemuel Le Barron, Samuel Hemmingway, George Osgood, Lawrence Sprague, Gideon Barstow, Samuel P. Hildreth, Horace Bean, Joseph Gardner, George Bates, Peter G. Robbins, Josiah D. Foster, Henry H. Childs, John Bigelow, Josiah Bacon, Jacob Patch, Abraham Haskell, jun. Joseph Foster, Thomas H. Cushing, Daniel Swan, Levi Simmons, Nathaniel Peabody, Andrew Nichols, Thomas Sewall, William Payson, Joseph O. Osgood, Benjamin James, Chandler Flagg, Oliver Dean, Daniel Berry, Gad Hitchcock, Caleb Boutelle, Jona. Newell, Jacob Bigelow, Isaac Warren, Asa Bucknam, John B. Brown, Daniel Cook, Benjamin Skelton, Joseph Lovell, Daniel Wardwell, Walter Channing, Augustus Lemosy, Ebenezer Dale, Benjamin Clap, Thomas Burnside.

NOTE I....See at the beginning of this volume.

NOTE K....Page 248.

COUNSELLORS OF THE MEDICAL SOCIETY, 1810.

Suffolk county: Lemuel Hayward, David Townsend, John Warren, Thomas Welsh, Aaron Dexter, William Spooner, John Fleet, Isaac Rand, jun. James Jackson, John C. Warren, John C. Howard, Benjamin Shurtleff, William Ingalls, John G. Coffin, John Dixwell. Essex: Edward A. Holyoke, Joshua Fisher, Micajah Sawyer, Benjamin L. Oliver, Thomas Kitteridge, John D. Treadwell, Moses Little, James Gardner, Thomas Pickman. Middlesex: John Brooks, Josiah Bartlett, Isaac Hurd, Oliver Prescott, William Gamage, Amos Bancroft, Calvin Thomas. Worcester: Oliver Fiske, Israel

Atherton, Jonathan Osgood, Thomas Babbit, Abraham Haskell. Hampshire: Henry Wells, Chauncey Brewer, Peter Bryant, Estes Howe, Robert Cutler. Berkshire: Timothy Childs, Erastus Sargeant, Hugo Burghardt. Norfolk: Cotton Tufts, Amos Holbrook, John Bartlett, James Mann, Abijah Richardson. Plymouth: James Thacher, Daniel Shute, Simeon Dunbar, Hector Orr. Bristol: William Baylies, Samuel Perry. Barnstable and Nantucket: Samuel Savage. District of Maine: Daniel Coney, Ammi R. Mitchell, Shirley Erving, Samuel Adams, Samuel Emerson, Benjamin Page, jun. Richard Hazeltine.

The present officers, not before named, are, Thomas Welsh, corresponding secretary; John C. Warren, recording secretary; James Jackson, treasurer; John Fleet, librarian and cabinet keeper.

Note L.....Page 252.

DEGREES CONFERRED AT HARVARD UNIVERSITY.

Bachelors in medicine: Peter D. Sales la Terriere, Amos Winship, Ebenezer Crosby, George H. Hall, William Pearson, Nathan Smith, James Gardner, William Sawyer, James O. Prentiss, Benjamin Haskell, Cushing Otis, Nahum Fay, John B. Menard, Amos Bancroft, Luther Stearns, John Walton, Heber Chase, William Dix, Frederick May, Samuel Brown, Lyman Spaulding, Nathaniel Bradstreet, Jonas White, John Dixwell, Josiah Batchelder, Benjamin Shurtleff, Samuel Manning, Henry Gardner, Uriah Sawyer, Robert Thaxter, John Clark, Rufus Wyman, Elias Mann, John Hosmer, Abel Fox, John Gorham, Enoch S. Tappan, William Gamage, jun. John Randall, Thomas J. Parker, John Merrill, Samuel R. Trevett, James P. Chaplin, Timo. Willington, Calvin Briggs, Nathaniel Bemis.

Honorary Doctors in Medicine: John Sprague, Edward A. Holyoke, James Lloyd, Cotton Tufts, Oliver Prescott, Ammi R. Cutter, Joshua Bracket, Charles Stockbridge, Micajah Sawyer, Hall Jackson, Samuel Danforth, William Baylies, John Haygarth, Isaac Rand, Marshall Spring, William Aspinwall, Samuel Savage, Joshua Fisher, Lemuel Hayward, John Warren, Benjamin Waterhouse, Aaron Dexter, Isaac Senter, Ben-

jamin Mason, Josiah Bartlett. Degrees in course: John Fleet, William Ingalls, Samuel Adams, James Jackson.

NOTE M.....Page 260.

Extract from the publication of the board of health, Dec. 16, 1802, signed Isaiah Doane, president, Robert Gardner, secretary.

THE PHYSICIAN'S REPORT.

With a view of ascertaining the efficacy of the cow pock in preventing the small pox, and of diffusing through this country the knowledge of such facts as might be established by a course of experiments instituted for the purpose, and thereby removing any prejudices, which might possess the public mind on the subject, the board of health of the town of Boston, in the course of the last summer, came to a determination to invite a number of physicians to co-operate with them on this important design; and with a liberality becoming enlightened citizens, erected a Hospital on *Noddle's Island*, for carrying it into execution. Accordingly, on the 16th of August last, nineteen boys were inoculated for the cow pock at the office, and in presence of the above mentioned board, with fresh transparent cow pock matter, taken from the arms of a number of patients then under this disease. These all received and passed through the disease to the complete satisfaction of every person present, conversant with the disease.

On the 9th of November, twelve of the above children, together with GEORGE BARTLETT, who had passed through the cow pock two years before, were inoculated for the small pox, on *Noddle's Island*, with matter taken from a small pox patient in the most infectious stage of that disease. The arms of these lads became inflamed at the incisions, in proportion to the various irritability of their habits, but not to a degree greater than what any other foreign, virulent matter would have produced. The small pox matter excited no general indisposition whatever, through the whole progress of the experiments, though the children took no medicines, but were indulged in their usual modes of living and exercise; and were all lodged promiscuously in one room.

At the same time and place, in order to prove the activity of the small pox matter, which had been used, two lads, who had never had either the small pox or cow pock, were inoculated from the same matter. At the usual time, the arms of these two patients exhibited the true appearance of the small pox. A severe eruptive fever ensued, and produced a plenteous crop of small pox pustules, amounting by estimation, to more than five hundred in one, and two hundred in the other.

When these pustules were at the highest state of infection, the thirteen children before mentioned, were inoculated a second time, with recent matter, taken from the pustules, which said matter was likewise inserted into the arms of the seven other children, who were absent at the first inoculation. They were all exposed, most of them for twenty days, to infection, by being in the same room with the two boys, who had the small pox, so that, if susceptible of this disease, they must inevitably have received it, if not by inoculation, in the natural way.

Each of the children was examined by the subscribers, who were individually convinced from the inspection of their arms, their perfect state of health, and exemption from every kind of eruption on their bodies, that the cow pock prevented their taking the small pox, and they do therefore consider the result of the experiment as satisfactory evidence, that the *cow pock, is a complete security against the small pox.*

James Lloyd.
Samuel Danforth.
Isaac Rand.
John Jeffries.
John Warren.
Thomas Welsh.
Benjamin Waterhouse.
Josiah Bartlett.
John Fleet, jun.
John C. Howard.
Thomas Danforth.

Charlestown, December 15, 1802.

This may certify, that my son, George Bartlett, at the age of eight years, was inoculated for the cow pock, on the 11th day of November, 1800; that the appearance of his arm, and the symptoms, so fully corresponded with the plates and publications I had then seen, as to convince me, and others of my medical friends, that he had the *disease*.

JOSIAH BARTLETT,
Fellow of the Mass. Med. Society.

To the President and Members of the Board of Health, Boston.

NOTE N....Page 262.

The marine hospital is 100 feet by 40, two stories high, and a basement; it is accommodated with kitchens, a spacious hall, and nineteen rooms, with a garden spot of five acres. The average number of patients is stated at thirty. It is controled by the collector of the customs, and conducted by an overseer or steward, under the direction of the surgeon.

NOTE O....Page 262.

The Boston alms house is a spacious well constructed edifice, with kitchens, a chapel, and 48 other apartments. It is governed by the overseers of the poor, and is conducted by a master, with proper assistants. The average number of inhabitants, for the two past years is about 359, of whom 130 are state paupers. The subjects of admission are the meritorious poor, unfortunate females, vagrants (who are kept employed) and maniacs. The usual number of sick and infirm is about 50.

NOTE P....Page 263.

The Massachusetts state prison is said to be as secure as any in the world. It is 200 feet long, 44 wide, and 38 high, containing 90 cells for convicts, with kitchens, convenient rooms for officers and guards, a chapel, hospital, workshops, and bathing place. The yard, in which is a garden is encompassed with a stone wall, 375 by 260, and 15 feet high, on which the guards are stationed. The institution is

under the direction of the supreme executive of the state; but the immediate charge is with a board of visitors. The number of convicts admitted from December, 1805, is 348, of whom 106 have been discharged, 18 pardoned, 4 escaped, 5 died, 1 shot, and 214 remain. No epidemic has prevailed, and the prisoners have enjoyed remarkable health.

Note Q....Page 265.

FOREIGN MEDICAL WORKS, REPRINTED IN MASSACHUSETTS.

Brown's Elements of Medicine. B. Bell's Surgery. do. on Ulcers. Burns on Abortion. Cheselden's Anatomy. do. Anatomical Tables. Cadogan on the Gout. Cullen's First Lines. do. Materia Medica. do. Nosology. do. Synopsis. Hamilton's Midwifery. do. on Female Complaints. Denman's Aphorisms. Buchan's Domestic Medicine. Darwin's Zoonomia. Edinburgh Dispensatory. do. improved and corrected. Eliot's Medical Pocket Book. Hooper's Medical Dictionary. do. Anatomist's Vade Mecum. Townsend's Vade Mecum. do. Therapeutics. Chaptal's Chemistry. Hays on Coughs and Consumptions. Underwood on the Diseases of Children. White on Lying-in Women. Timbrel on Ruptures.

LIST OF AUTHORS OF THE ANNUAL DISSERTATIONS, THEIR SUBJECTS, AND THE YEARS IN WHICH THEY WERE DELIVERED.

ISAAC RAND, M. D. On phthisis pulmonalis, and the use of the warm bath 1804

JOHN WARREN, M. D. On the mercurial practice in febrile diseases 1805

JOSHUA FISHER, M. D. On several narcotic vegetable substances 1806

THOMAS WELSH, M. D. On heat and cold, as agents on the human body 1807

* Hon. JOHN BROOKS, M. D. On pneumonic inflammation 1808

AARON DEXTER, M. D. On the use of blisters in diseases of the articulations . . . 1809

JOSIAH BARTLETT, M. D. On the progress of medical science in the commonwealth of Massachusetts . 1810

Hon. OLIVER FISKE. On certain epidemics which have prevailed in the county of Worcester . 1811

* Dr. ABRAHAM HASKELL. On cynanche trachealis 1812

* Note. Particular circumstances have prevented the publication of these two dissertations at present.

INDEX.

A

Abdomen, state of contents of, in dissections after spotted or petechial fever 142. 218. 222. 226
appearance of the viscera of, on dissecting in cases of organic disease of the heart 62. 65. 74. 100
Alms House, Boston, account of, as connected with the medical school of Harvard University . . 262
Alternations of ease and distress, remarkable in organic disease of the heart . . . 83
American revolution, a source of medical investigation and improvement . . 244
academy of arts and sciences, when incorporated . . . 245
Amherst, Ms. bills of mortality in, by Robert Cutler, M. D.
for A. D. 1808 . 48
for A. D. 1809 . . 267
for A. D. 1810 . 268
for A. D. 1811 . . 269
for A. D. 1812 . 270
Aneurism, effect of operation for, on animal heat 294
Aorta, valves of, commonly diseased in organic diseases of the heart . . . 49
appearance of valves of, represented in cases of organic disease of the heart . . 65
Arsenic, Fowler's solution, effect of, in epilepsy, by Matthias Spaulding, A. M. of Amherst, N. H. 28
use of, in a singular and mortal disease in Medfield 40
Articulations, the effect of blisters in diseases of 301
Ataxic fever, of Selle and Pinel, considered a proper name for the epidemic, commonly termed spotted or petechial fever . . 166

Authors, of annual dissertations, list of, with their subjects, and the years in which they were delivered 546

B

Babbitt Thomas, Dr. account of spotted or petechial fever 205
account of the application of hot iron in cases of lock-jaw . 283
Bartlett Josiah, M. D. case of spotted or petechial fever with dissections . 229
dissertation, on the progress of medical science in the Commonwealth of Massachusetts, delivered before the Society, June 1810 . . 235
Bath warm, use of, in petechial or spotted fever . 146
Bills of mortality in Amherst, Mass. by Robert Cutler, M. D. See Amherst
Blisters. See vesication
Blood-letting. See venesection
Board of Health, Boston, experiment on vaccination 260
Boylston Zabdiel, first inoculator for small-pox . 237
Ward Nicholas, promoter of medical science 253
Bowen Pardon, M. D. of Providence, R. I. facts relating to the small-pox and kine-pock 16
Bodies dead, external appearance of, from spotted or petechial fever 140

C

Candidates for practice of medicine, examination of, in this state, first instituted by Washington . 244
Cases, of organic disease of the heart, with dissections, by John Collins Warren, M. D. . . 49
of spotted or petechial fever, stated in the report of the committee of the Counsellors, with the modes of treatment adopted by the several practitioners with dissections . . . 201
Cathartics, use of, as recommended by the committee of counsellors on spotted or petechial fever . 188

Chaplin I. P. M. D. case of spotted or petechial fever, with dissection 232
Cold, effect of, generally considered, by Thomas Welsh, M. D. 287
Contagion of yellow fever, Dr. Hosack's opinion of . 531
Copper sulphate, use of, in uterine hæmorrhage, by Joshua Fisher, M. D. V. P. M. M. S. . 271
method of preparing and administering of 272
Cordials, use of, in spotted or petechial fever . 146
use of, as recommended by the committee of counsellors on spotted or petechial fever 195
Cow Pock. See vaccination
Cummings John, a founder of the medical school at Harvard University 251
Cutler Robert, M. D. bills of mortality in Amherst, Mass. See Amherst
Cynanche trachealis, mercurial practice in . 493

D

Death, from spotted or petechial fever, external appearance of the body 140
Derby Elias H. Esq. a donor to the Medical School at Harvard University . . . 252
Dexter Aaron, M. D. dissertation annual, on the use of blisters, in diseases of the articulations . 301
Diet, in spotted or petechial fever, as recommended by committee 199
Digitalis purpurea, use of, in organic disease of the heart, 87
Disease, singular and mortal, in Medfield, 1806, and more recently in Hartford, account of . 36
uncommon, which appeared in Geneva, the winter and spring of 1805, account of . . 43
organic, of the heart, cases of, by John C. Warren, M. D. with dissections . . . 49
epidemic, commonly called spotted or petechial fever, report of committee of counsellors on .. 111
Discourses annual, account of 250

Diseases of the articulations, dissertation on the use of blisters in, by Aaron Dexter, M. D. . . . 301
epidemic, in the county of Worcester, Massachusetts, dissertation on, by Hon. O. Fiske, M. D. 318
Dissertations annual, list with dates of, their subjects and authors 546
on the progress of Medical Science in the Commonwealth of Massachusetts, by Josiah Bartlett, M. D. 235
on heat and cold, by Thomas Welsh, M. D. 286
on the use of blisters, in diseases of the articulations, by Aaron Dexter, M. D . 301
on certain epidemic diseases, which prevailed in the county of Worcester, Massachusetts, by Hon. Oliver Fiske . . . 318
on mercurial practice, by John Warren, M. D. President Med. Society, &c. . 341
Douglass William, Dr. an opposer of variolous inoculation, account of . . . 237
treatise on angina ulcusculosa, account of 238
Dropsy, in organic disease of the heart . . . 101
encysted and ovarian schirrhus, remarkable case of, by Dr. Amos Holbrook . . 29
of the pericardium, idiopathic, some symptoms similar to those of organic disease of the heart, an uncommon disease however . . . 85
Dysentery, mercurial practice in 519
Dyspnœa, on ascending an eminence, a symptom of organic disease of the heart 49

E

Electricity, effect of, in a case of tonic spasm by Matthias Spaulding, A. M. 46
Emetics, use of, in spotted or petechial fever, as by report of committee of counsellors 187
Epidemic, commonly called spotted or petechial fever, report of committee of counsellors . . 111

Epidemic fever, general description of . . . 393
practice in, with mercury . . 402
Epilepsy, a singular case of, by Matthias Spaulding, A.M. of Amherst, N. H. 22
Erving William, a founder of the medical school at Harvard University 251
Evacuations, use of, in spotted or petechial fever, as by report of the committee of counsellors . . 179

F

Facts, relating to small pox and kine pock, by Pardon Bowen, M. D. of Providence, R. I. . . . 16
Fatal cases, proportion of, in the disease commonly called spotted or petechial fever 137
Fellows, list of, see beginning of the vol. . . .
Fellowship, qualifications entitling to 255
Fever, mercurial practice in, by John Warren, M. D. President Mass. Med. Society, &c. . . 349
epidemic, commonly called spotted or petechial, report of committee of counsellors on . . 111
yellow, appeared in Boston, 1798, account of 462
mercurial practice in 463
Fevers epidemic, general description of . . . 393
practice in, with mercury . . . 402
Fisher Joshua, M. D. Vice-President Mass. Med. Society, account of the effects of sulphate of copper, in uterine hæmorrhage . . 271
his method of preparing and administering sulphate of copper . . . 272
Fiske Oliver, Hon. case of spotted or petechial fever . 215
dissertation annual, on certain diseases epidemic in the county of Worcester, Massachusetts 318
observations on petechial fever, mode of treatment of, &c. . . . 326
observations on the state of the Medical Society 349

Flint A. Dr. case of spotted or petechial fever, . . 137
Fowler's mineral solution, effect of, in epilepsy, by Matthias Spaulding, A. M. of Amherst, N. H. . 28
effect of, in a singular and mortal disease which prevailed in Medfield 40

G

Galen, opinion on the use of mercury . . 352
Geneva, an uncommon disease appeared there in the winter and spring, 1805, account of . . 43

H

Harvard University, Medical School of, account of 251
Harward Thomas, tract on pharmacy, account of . 239
Haskell Abraham, Dr. case of spotted or petechial fever on himself 211
Head, appearance of, in dissections of subjects with organic disease of the heart . . 62. 74
appearance of, in dissections after spotted or petechial fever 140
Heart, appearance of, in cases of organic disease of, with dissections, by John C. Warren, M. D. . 61
Hæmorrhage uterine, use of sulphate of copper in. By Joshua Fisher, M. D. V. Pres. M. M. S. . 271
Heat animal, source of . . . 288
Hippocrates' opinion of . 290
Dr. Leslie's theory of . . 291
Dr. Crawford's theory of . 292
Dr. John Bell's theory of . . 293
effect of the operation for aneurism on 294
Heat and cold, application of, in spotted or petechial fever, as recommended by committee of counsellors . 191
dissertation annual on, by Thomas Welsh, M. D. . . 286
Hersey Ezekiel, } founders of the medical school of Har-
Hersey Abner, } vard University, notice of 271

History natural, of the epidemic disease commonly called spotted or petechial fever . . 121
general, of mercurial practice . 350
Holbrook Amos, Dr. remarkable case of ovarian schirrhus and encysted dropsy, with dissection . 29
Holyoke Edward A., M. D. first president of the Massachusetts Medical Society, account of 246
communication of case of obstinate tonic spasm cured by Matthias Spalding, A. M. of Amherst, N. H. 45
Hosack Dr. opinion of the contagious nature of yellow fever 531
Hospital at Rainsford's Island, first medical establishment in Masachusetts, account of . 240
at Point Shirley and Castle William, to inoculate for small pox, account of . 240
marine, account of . . 262
Hot Iron, application of, in cases of lock jaw, by Thomas Babbitt, M. D. 282
Humane Society, when incorporated . 267
premium adjudged to Samuel Brown for his communication on yellow fever, by 267
Merrimac, when incorporated . 258
Hydrothorax, how it may be distinguished from organic disease of the heart . . 84
Dr. William Hamilton's opinions of 103
Case of, with dissections . . 107

I

Inclination forward, a prominent system in organic disease of the heart . . . 49
Inflammation erysipelatous, in spotted or petechial fever 160
Influenza, observations on, by James Jackson, M. B. 9
Introduction to mercurial practice, by John Warren, M. D. Pres. Mass. Med. Society . . 341
Iron hot, application of, in cases of lock jaw, by Thomas Babbitt, M. D. . . . 183

J

Jackson James, M. B. observations on influenza 9
Joints, disease of. See Articulations.

K

Kine Pock, efficacy of as a preventive of small pox, substantiated by facts, by Pardon Bowen, M.D. 16
experiment on, by the board of health, Boston, account of . . . 260

L

Lead acetite, effect of, in menorrhagia and leucorrhœa, by Dr. James Mann . . . 277
Lectures, at the Medical Institution of Harvard University, time of 252
Letter circular, to the Fellows of the Society, from the committee of counsellors, on spotted or petechial fever 112
Library, medical and anatomical, of the Medical School of Harvard University, account of . . 253
List of Officers and Fellows, see beginning of volume.
of annual dissertations with dates of, their subjects and authors 546
Lloyd James, M. D. an eminent practitioner in Boston, notice of 248
Lymphatic swelling of the inferior extremities of puerperal women, observations on, by Dr. James Mann 1

M

Malignant, a term loosely applied . . 163
symptoms which sanction the use of, with authorities . . . 163
Mann James, Dr. observations on the lymphatic swelling of the inferior extremities of puerperal women 1
on menorrhagia and leucorrhœa, and the use of acetite of lead and submuriate of mercury in cases of . . 274

Marine hospital, account of . . 262
Mather Cotton, a patron of variolous inoculation 237
Measles, account of . . . 483
use of mercurials in . . . 484
Medfield, a singular and mortal disease which prevailed in 1806, account of 36
Medical school of Harvard University, account of 251
liberal benefactors of 251
Professors in 252
Medical Society of Massachusetts, when incorporated 246
when incorporated with essential alteration and extension . . 248
qualifications entitling to fellowship in 255
Menorrhagia and leucorrhœa, observations on, with the effect of acetite of lead and submuriate of mercury in cases of, by Dr. James Mann 274
Mercury. See quicksilver
Mercurial practice in febrile diseases, dissertation on, by John Warren, M. D. President of M. M. Soc. . . 341
introduction to . . 341
general history of . . 349
in fevers, prevailed first in America, account of . . 353
strong prejudices against . 355
in typhus . . . 440
in yellow fever . . 462
in small pox . . 476
in measles . . 483
in throat distemper . . 485
in cynanche trachealis . 493
in hydrocephalus internus . 495
in pneumonia and pleurisy . 497
in phthisis . . . 507
in dysentery . . 519
in rheumatism . . 524
conclusion to dissertation on 526

Merrimack Humane Society, when incorporated . 258
Milton, town of, first in this state to extend the benefits of vaccination in a corporate capacity, under the direction of Dr. Amos Holbrook, account of 261
Morbid changes in the organization of the heart, observed by John C. Warren, M. D. enumeration of . . . 79
observed in cases of disease of the heart, which may be considered secondary, enumeration of . 79
Mortality, bills of, for Amherst, Massachusetts, by Robert Cutler, M. D. See Amherst
Museum anatomical, of Harvard University, by whom endowed 252

N

Name and character of spotted or petechial fever, with a detail of authorities, ancient and modern . 153
Natural history of spotted or petechial fever . 121
Nichols John, Esq. a donor to the medical school of Harvard University, notice of . 252
Notes to Dr. Bartlett's dissertation on the progress of medical science . . . 337

O

Officers, list of. See beginning of vol.
Operations, table of, in a remarkable case of ovarian scirrhus and encysted dropsy . 35
Opium, use of, in organic disease of the heart . 87
Organic diseases of the heart, cases of, with dissections, by John C. Warren, M. D. . . 49
Ossification of the heart, cases of . . 49

P

Payne William, Dr. account of spotted or petechial fever 201
Petechial or spotted fever, report of committee of counsellors on . . . 111

Petechial or spotted fever, epidemic and fatal in the county of Worcester and other parts of Massachusetts 111
circular letter to practitioners on . 112
state of weather the summer and autumn preceding 118
natural history of . . . 121
proportion of fatal cases in . . 137
appearances after death from . 139
of the surface . . 140
head . . 140
thorax . . 142
abdomen . 143
modes of treatment adopted in, and their effects 145
same disease in other places, account of 151
name and character of, with a detail of authorities, ancient and modern for . . 153
causes of . . . 174
method of treatment recommended by the committee on 176
evacuations, when proper . . 179
blood letting . . 180
emetics . . 187
cathartics . . . 188
laxatives . . 190
heat and cold, application of . . 191
vesication, use of . . 193
use of preparations of quicksilver in . 194
cordials . . . 195
tonics . . . 198
diet 199
cases of 201
Pharmacopœia of the Mass. Medical Society, account of 249
Phthisis, mercurial practice in . . 507
Pinel, his opinions on ataxic or malignant fevers, account of 165
his nosological description of ataxic fever . 166
Pneumonia and pleurisy, mercurial practice in . 497
Potass, hydro-sulphuret, effect of, in counteracting the oxygenating power of mercurials . 387

Practice mercurial, dissertation on, by John Warren, M. D Pres. M. M. Soc. &c. . . . 341
Premium annual, for the best dissertations, account of 253
Priests, practitioners of medicine in Massachusetts at the first settlement, account of . . . 239
Professors in the Medical School of Harvard University account of 252
Puerperal women, observations on the lymphatic swelling of the inferior extremities of, by Dr. James Mann 1

Q

Qualifications, entitling to fellowship in the Mass. Med. Society 255
Quicksilver, Galen's opinion of 352
general history of the use of . . . 349
its preparations and nature of, generally considered 356
general operation of, on the body . . 360
operation of, as stimulants . . . 364
operation of, on disease, as stimulants . 373
operation of, as effecting a change of action in the system 375
general use of, in fevers combined with hepatic and other visceral affection . . 424
salivation by, effect of, generally considered 380
how to alleviate and counteract it 387
use of, in epidemic fevers, with a general description of 393
in typhus 440
in yellow fever, with a general description of, as it appeared in Boston, 1798 . . 462
practice with, in small pox . . . 476
in measles 483
in throat distemper . . 485
in cynanche trachealis . 495
in pneumonia and pleurisy . 497
in phthisis 507
in dysentery . . . 519

Quicksilver, practice with, in rheumatism . . 524
use of, in spotted or petechial fever . . 150
use of, in spotted or petechial fever, as recommended by committee of counsellors 195
sub-muriate of, combined with acetite of lead, effect of, in menorrhagia and leucorrhœa, 277

R

Rainsford Island hospital, the first medical establishment in Massachusetts 240
Rand Isaac, a respected practitioner of Charlestown, notice of 241
Remarks, on cases of organic disease of the heart, by John C. Warren, M. D. 80
Report of committee of counsellors on the epidemic, commonly called spotted or petechial fever . . . 111
Rheumatism, mercurial practice in 526

S

Sabina, unguent. use of, after blisters, in diseases of the articulations, by Aaron Dexter, M. D. . 308
Salivation, general description of . . 380
how to alleviate and counteract it . 387
Schirrhus ovarian and encysted dropsy, a remarkable case of, with dissections, by Dr. Amos Holbrook . 29
Scilla maritima, use of, in organic disease of the heart 87
Small-pox and kine pock, facts relating to, by Pardon Bowen, M. D. of Providence, R. I. . . 16
Small-pox, mercurial practice in . . 476
Society, Mass. Medical, when incorporated and organized 246
when altered and extended 248
list of officers and fellows for 1812. See beginning of volume
Spotted or petechial fever, report of committee of Counsellors on . . 111
observations on, by Hon. Oliver Fiske, M. D. . 326

Spotted or petechial fever, cases of, with the modes of treatment and dissections 201
State Prison, medical establishment of . . 263
Stramonium, use of in epilepsy . . 28
Sullivan, his Excellency James Esq. his case of organic disease of the heart minutely stated by J. C. Warren, M. D. 50
Sulphate of copper, use of, in uterine hæmorrhage, by Joshua Fisher, M. D. V. Pres. Mass. Med. Society . 271
use of, in recent cases of leucorrhœa 273
method of preparing and administering of . . . 272

T

Table of operations, in a remarkable case of ovarian schirrhus and encysted dropsy . . 35
Thatcher Thomas, published a paper on small-pox and measles, 1677, account of . . . 236
Thorax, state of contents of, in dissections of subjects with organic disease of the heart, 60. 64. 66. 69. 70. 73
appearance of contents of, in dissections after spotted or petechial fever . . 142
Throat distemper, description of, and mercurial practice in 485
Tonic spasm, an obstinate case of, cured by electricity, under the direction of Dr. Matthias Spalding, of Amherst, N. H. communicated by Edward A. Holyoke, M. D. 45
Tonics, in spotted or petechial fever, as recommended by committee of Counsellors 198
Touch royal, when considered the only cure for scrofula in London 256
Treatment, modes of, which have been adopted, and their effects, in spotted or petechial fever . 145
method of, recommended by the committee of Counsellors in spotted or petechial fever 176
Tytler James, a writer on yellow fever, notice of 256

U

University, Harvard, Medical School of . . 251
Uterine hæmorrhage, use of sulphate of copper in, by Joshua Fisher, M. D. V. Pres. M. M. Soc. . 271

V

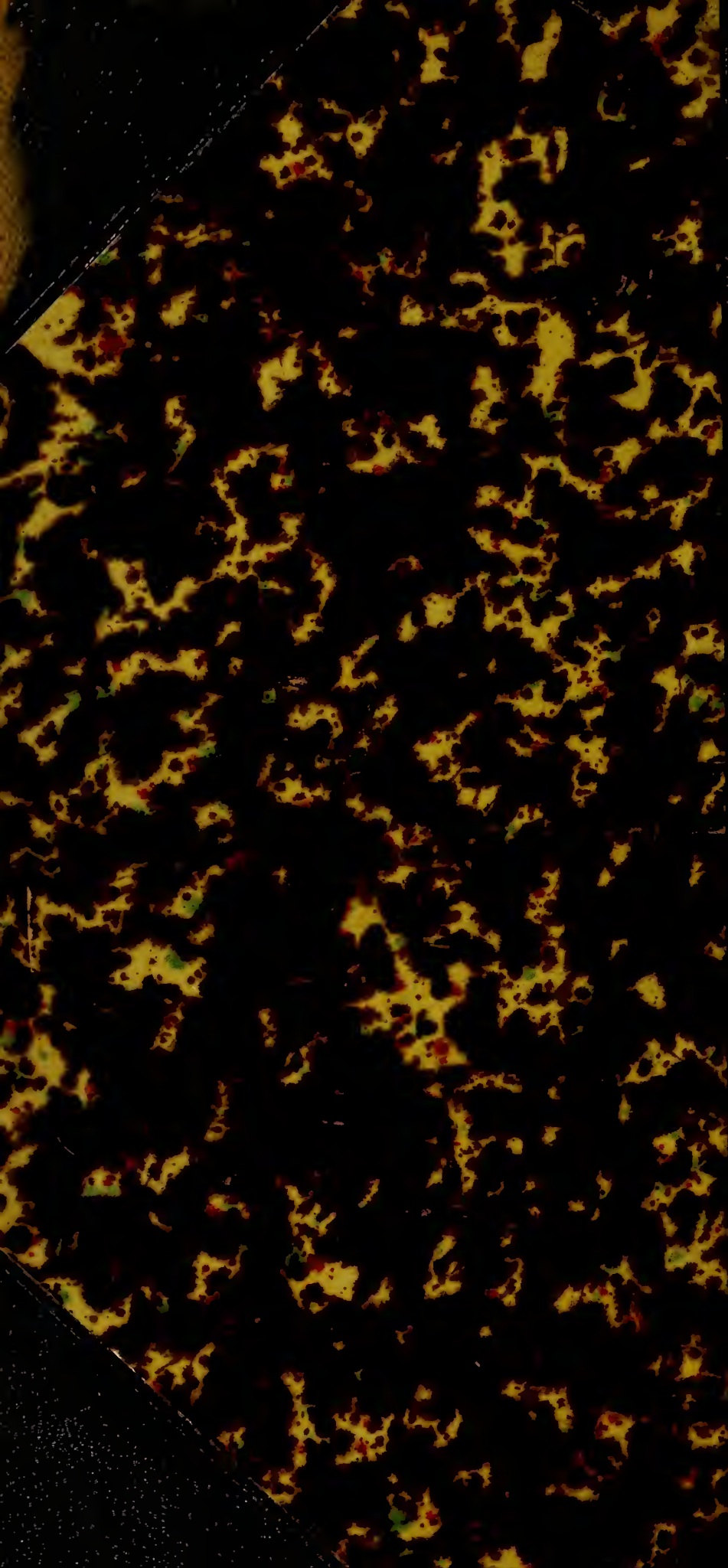
Vaccination, discovery of, when transmitted to this state 158
a satisfactory experiment of the prophylactic efficacy of, made by the Board of Health of Boston, under the superintendence of a respectable committee of physicians, account of . . . 260
A Committee appointed by the Counsellors of the Massachusetts Medical Society to investigate the subject, and report the best method of practice in, account of . 260
the town of Milton the first to extend the benefit of, in a corporate capacity, account of . . . 261
promoted by the Legislature of Massachusetts, account of . . 261
Vaccine Institution, Boston, for gratuitous vaccination, account of 260
Valves of the aorta, commonly diseased in organic disease of the heart 49
appearance of, represented . . 65
Venesection, in spotted or petechial fever . 180
effect of, in organic disease of the heart 87
Vesication, use of, in organic disease of the heart . 87
effect of, in cases of spotted or petechial fever 150
recommendation of, by the committee of counsellors on spotted or petechial fever 193
effect of, in menorrhagia and leucorrhœa 277
use of, in diseased articulations . 301

W

Warren John, M. D. President Mass. Med. Society, instituted the first school of anatomy and surgery in Massachusetts, account of . 245
when installed professor of anatomy and surgery, at Harvard University . . 252
when elected President of Mass. Med. Society 268
President of the Humane Society, account of 257
his dissertation on mercurial practice . 341
Warren Joseph, Gen. notice of 244
Warren John C., M. D. cases of organic diseases of the heart, with dissections 49
Washington George, instituted the first examination of candidates for practice of medicine in Massachusetts, account of 244
Weather, the summer and autumn preceding the prevalence of the spotted or petechial fever 218
Welsh Thomas, M. D. dissertation on heat and cold . 286
Williams Nathaniel, an eminent physician, notice of . 238
Women puerperal, observations on the lymphatic swelling of the inferior extremities of, by Dr. James Mann 1

Y

Yellow fever, in Boston, 1798, account of, . . . 462
mercurial practice in 462
Dr. Hosack's opinion of the contagious nature of 531

In consequence of the rapidity with which the latter part of this volume was necessarily printed, some mistakes have escaped notice, which the reader is requested to correct.

In the List of Fellows, Samuel Adams, M. D. of Wiscasset, and Hon. James Parker, of Gardiner, should be enrolled as Counsellors. In page 293, line 20, for *Dr.* read *Mr.*; p. 307, for *Achilles*, read *Achillis*; p. 315, for *Crouther*, read *Crowther*; p. 374, l. 3, read *Mr. Cruickshank*; p. 384, l. 18, for *Dr.* read *Mr.*; p. 395, note & alibi, read *Smyth*; p. 404, l. 7, and 433, l. 6, read *Hume*; p. 408, l. 14, read *Chisholm*; p. 417, dele line 3; p. 419, l. 22 & alibi, for *Dr.* read *Mr.*; p. 420, l. 28, read *Fillan*; p. 421, note 1, for *Dr.* read *Mr.*; p.